Naval Facilities Engineering Command Southwest
BRAC PMO West
San Diego, CA

# DRAFT
# REMEDIAL ACTION COMPLETION REPORT

Remedial Action in Parcel D-1 Phase II

HUNTERS POINT NAVAL SHIPYARD
SAN FRANCISCO, CALIFORNIA

April 2019



DCN: APTM-0006-4550-0055

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April 2019

**Prepared for:**

**Department of the Navy**
**Naval Facilities Engineering Command Southwest**
**BRAC PMO West**
**33000 Nixie Way, Bldg. 50**
**San Diego, CA 92147**

**Prepared by:**

**Aptim Federal Services, LLC**
**4005 Port Chicago Highway, Suite 200**
**Concord, CA 94520**

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| | |
|---|---|
| Michael Ayala, PE<br>Primary Author<br>Technical Lead | Date |
| Lisa Bercik, PE<br>Project Manager | Date |

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# Acronyms and Abbreviations

| | |
|---|---|
| ABC | aggregate base course |
| AC | asphaltic concrete |
| APTIM | Aptim Federal Services, LLC |
| ARIC | area requiring institutional controls |
| Bay | San Francisco Bay |
| bgs | below ground surface |
| BMP | best management practices |
| CB&I | CB&I Federal Services LLC |
| CCSF | City and County of San Francisco |
| ChaduxTt | ChaduxTt, A Joint Venture of St. George Chadux Corp. and Tetra Tech EM Inc. |
| COC | chemical of concern |
| CSO | Caretaker Site Office |
| DBR | *Final Design Basis Report, Parcel D-1, Hunters Point Shipyard, San Francisco, California* |
| EPP | environmental protection plan |
| FCR | field change request |
| GWS | gamma walkover survey |
| HPNS | Hunters Point Naval Shipyard |
| IL | investigation level |
| IR | Installation Restoration |
| LLRO | low-level radiological object |
| LLRW | low-level radioactive waste |
| LUC | land use control |
| LUC RD | *Land Use Control Remedial Design, Parcel D-1, Hunters Point Shipyard, San Francisco, California* |
| NaI | sodium iodide |
| Navy | U.S. Department of the Navy |
| NORM | naturally occurring radioactive materials |
| PAH | polycyclic aromatic hydrocarbon |
| Parcel D-1 Phase I RACR | *Final Remedial Action Completion Report, Remedial Action in Parcel D-1 Phase I, Hunters Point Naval Shipyard, San Francisco, California* |
| PPE | personal protective equipment |
| RA | remedial action |
| RACR | remedial action completion report |
| RAO | remedial action objective |
| RAWP | *Final Revision 1, Final Remedial Action Work Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* |
| RAWP Addendum | *Final Remedial Action Work Plan Addendum, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* |
| RD | remedial design |
| RG | remediation goal |
| ROD | *Final Record of Decision for Parcels D-1 and UC-1, Hunters Point Shipyard, San Francisco, California* |

# Acronyms and Abbreviations (continued)

| | |
|---|---|
| ROI | region of interest |
| ROICC | Resident Officer in Charge of Construction |
| RPM | Remedial Project Manager |
| RSI | Radiation Solutions, Inc. |
| RSY | radiological screening yard |
| SFRA | San Francisco Redevelopment Agency |
| TCRA | time-critical removal action |
| VOC | volatile organic compound |

# 1.0 OVERVIEW

This Remedial Action Completion Report (RACR) presents the specific tasks and procedures implemented by Aptim Federal Services, LLC (APTIM) during the installation of the durable cover at Parcel D-1 Phase II, Hunters Point Naval Shipyard (HPNS), San Francisco, California (Figure 1). This RACR also documents the completion of the remedial action (RA) to address potential chemicals of concern (COCs) in soil, groundwater, and radiologically-impacted soil and structures in Parcel D-1 Phase II. The Phase II durable cover portion of the RA was performed for the U.S. Department of the Navy (Navy), Naval Facilities Engineering Command Southwest, under Contract No. N62473-17-D-0006, Contract Task Order N6247317F4550. Base Realignment and Closure Program Management Office West managed the work elements under this Contract Task Order.

The time-critical removal action (TCRA) for radiologically impacted soil and structures at Parcel D-1 was completed in two phases. The first phase is summarized in the *Final Radiological Removal Action Report, Radiological Surveys of Buildings and Ground Surfaces, and Storm Drain and Sanitary Sewer Removal, Parcel D-1, Phase 1, Hunters Point Naval Shipyard, San Francisco, California* (CB&I Federal Services LLC [CB&I], 2014). The second phase is described in the *Removal Action Completion Report, Removal Action Completion Report, Radiological Remediation and Support, Parcel D-1, Phase II, Hunters Point Naval Shipyard, San Francisco, California* (Gilbane, 2019). During the second phase of the TCRA, low-level radiological objects (LLROs) were discovered in areas that were not previously considered radiologically impacted. The Navy determined that these LLROs were within the fill soil used to expand the shipyard after 1946. Due to the unexpected LLROs identified within Parcel D-1 Phase II, the Parcel D-1 durable cover was installed in two separate phases. The Parcel D-1 Phase I durable cover was installed from May 2016 through January 2017. The Parcel D-1 Phase I RA is summarized in the *Final Remedial Action Completion Report, Remedial Action in Parcel D-1 Phase I, Hunters Point Naval Shipyard, San Francisco, California* (Parcel D-1 Phase I RACR; APTIM, 2018a). This RACR describes the installation of the durable soil cover at Parcel D-1 Phase II only.

The Parcel D-1 RA for the durable cover was executed in accordance with the following documents:

- *Final Design Basis Report, Parcel D-1, Hunters Point Shipyard, San Francisco, California* (DBR; ChaduxTt, A Joint Venture of St. George Chadux Corp. and Tetra Tech EM Inc. [ChaduxTt], 2011a), including the design drawings and construction specifications
- *Final Revision 1, Final Remedial Action Work Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* (RAWP; CB&I, 2016)
- *Final Remedial Action Work Plan Addendum, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* (RAWP Addendum; APTIM, 2018b)

The objective of the DBR (ChaduxTt, 2011a), RAWP (CB&I, 2016), and RAWP Addendum (APTIM, 2018b) was to implement the selected remedy for soil as established in the *Final Record of Decision for Parcels D-1 and UC-1, Hunters Point Shipyard, San Francisco, California* (ROD; Navy, 2009). As the ROD specifies, the DBR (ChaduxTt, 2011a) included limited removal of chemicals in soil and a durable soil cover over the entire parcel to break potential exposure pathways. The remedial design (RD) for Parcel D-1 also included monitoring for volatile organic compounds (VOCs) in groundwater and a focused soil gas survey to monitor vapors below ground. The RD included land use control (LUC) restrictions to limit exposure of future landowners or users of the property to potentially residual hazardous substances and to maintain the integrity of the remedy. Chemical hot spot removal was performed in 2011 (ERRG, 2011) and the soil gas survey was performed in 2010 (Sealaska Environmental Services, 2013).

## 1.1 Project Schedule

The project schedule, as modified due to field conditions, is included as Table 1. Field mobilization was August 13, 2018. Subgrade preparation occurred from August 20 through October 19, 2018. Seawall stabilization began on September 10 and ended on October 19, 2018. Paving activities started November 5, 2018 and ended on November 13, 2018. Extension of monitoring wells, installation of fence, and the final topographical survey took place from November 2018 through January 2019. Operation and maintenance began on February 1, 2019.

## 1.2 Site Conditions and Background

This subsection presents a discussion of the site location, site description and history, nature and extent of contamination, and institutional and LUC.

### 1.2.1 Site Location

HPNS is located in southeastern San Francisco on a peninsula that extends east into the San Francisco Bay (Bay) (Figure 1). HPNS consists of 866 acres: 420 acres on land and 446 acres underwater in the Bay. Parcel D-1 is located on the southeastern portion of the former 98-acre Parcel D. Parcel D-1 is approximately 49 acres. Parcel D-1 Phase I is approximately 27 acres, and Phase II is approximately 22 acres (Figure 1).

### 1.2.2 Site Description and History

In 1940, the Navy obtained ownership of HPNS for shipbuilding, repair, and maintenance activities. After World War II, activities at HPNS shifted to submarine maintenance and repair. HPNS was also the site of the Naval Radiological Defense Laboratory from the late-1940s until 1969. HPNS was deactivated in 1974 and remained relatively unused until 1976. Between 1976 and 1986, the Navy leased most of HPNS to Triple A Machine Shop, Inc., a private ship repair company. In 1987, the Navy resumed occupancy of HPNS (Navy, 2009).

HPNS property was placed on the National Priorities List in 1989 pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986, because past shipyard operations left hazardous substances on site. In 1991, HPNS was designated for closure pursuant to the Defense Base Closure and Realignment Act of 1990. Closure at HPNS involves conducting environmental remediation and making the property available for nondefense use. Former Parcel D, which is in the central portion of the shipyard, was formerly part of the industrial support area and was used for shipping, ship repair, and office and commercial activities. Former Parcel D was divided into Parcels D-1, D-2, G, and UC-1.

Parcel D-1 is owned by the federal government under the jurisdiction of the Navy and is planned to be transferred to the City and County of San Francisco (CCSF). Based on the CCSF's reuse plan, Parcel D-1 is expected to be zoned to accommodate mixed uses, including industrial and maritime industrial uses (Former San Francisco Redevelopment Agency [SFRA], 1997). However, reuse plans are subject to change by the local government and the *Amended Hunters Point Redevelopment Plan* (Former SFRA, 2010) contains scenarios that include residential reuses for portions of Parcel D-1.

Parcel D-1 consists of flat lowlands that were constructed by placing borrowed fill material from various sources, including crushed serpentinite bedrock from the adjacent highland and dredged sediments with surface elevations between 0 to 10 feet above mean sea level. The serpentinite bedrock and serpentine bedrock-derived fill material consist of minerals that naturally contain asbestos and relatively high concentrations of arsenic, manganese, nickel, and other metals. The hydrostratigraphic units present at Parcel D-1 are the same as at former Parcel D: A-aquifer, aquitard zone, B-aquifer, and a bedrock water-bearing zone. In addition, there is a layer of fill (1 to over 120 feet thick) overlying bedrock (SulTech, 2007); groundwater may be present in the fill and in the bedrock. Groundwater beneath Parcel D-1 includes the shallow A-aquifer and the deeper B-aquifer. Groundwater is not currently used for any purpose at Parcels D-1 (Navy, 2009).

Groundwater in the A-aquifer is not suitable as a potential source of drinking water. Groundwater in the B-aquifer underneath Parcel D-1 has a low potential as a future source of drinking water. The CCSF controls use of the B-aquifer groundwater. The San Francisco Public Utility Commission prohibits the use of groundwater in this area of the city. The San Francisco Bay Region of the California Regional Water Quality Control Board concurred with the Navy's conclusion that the groundwater in the A-aquifer is not suitable as a source of drinking water (Navy, 2009). The groundwater at Parcel D-1 generally flows toward the Bay.

Parcel D-1 ecology is limited to plant and animal species adapted to the industrial environment. Viable terrestrial habitat is inhibited at Parcel D-1 because nearly all of the ground surface is paved or covered by structures. No threatened or endangered species are known to inhabit Parcels D-1 or its immediate vicinity (Navy, 2009).

## 1.2.3 Nature and Extent of Contamination

Activities associated with known or potential chemical releases at Parcel D-1 were identified and environmental investigations were conducted to identify and assess the nature and extent of contaminants in soil and groundwater. The following subsections summarize the nature and extent of contamination. Further details on the nature and extent of contamination are discussed in the ROD (Navy, 2009) and the *Revised Final Feasibility Study for Parcel D, Hunters Point Shipyard, San Francisco, California* (SulTech, 2007). The remedy was selected to remove or leave in place and cover soil where contaminant concentrations exceeded remediation goals (RGs) to prevent human exposure. No ecological risk has been identified associated with the site (Navy, 2009).

### 1.2.3.1 Soil

The COCs in soil at Parcel D-1 include metals, VOCs, semivolatile organic compounds, and radionuclides. The remedy in consideration of current and reasonably anticipated future land uses COCs in soil has addressed the COCs. The Navy removed waste materials and soil from various areas across Parcel D-1 since 1991. However, contaminants including polycyclic aromatic hydrocarbons (PAHs) resulting from industrial activities remained; areas where PAHs exceeded RGs were excavated as part of the final remedy (ERRG, 2011; ERRG, 2014). Six hotspot locations were successfully remediated in Parcel D-1. Approximately 200 cubic yards of soil was removed from the hotspot locations and disposed off site (ERRG, 2011; ERRG, 2014).

### 1.2.3.2 Radionuclides

The Navy identified radiologically-impacted sites, including buildings, equipment, and infrastructure at Parcel D-1 associated with the former use of general radioactive materials and decontamination of ships used during atomic weapons testing in the South Pacific (Naval Sea Systems Command, 2004). The Navy performed a TCRA to address potential radioactive contamination in buildings, fill areas, former building sites, storm drains, and sanitary sewers at Parcel D-1 (Navy, 2006). The TCRA was completed in two phases. Navy contractors completed Phase I (CB&I) and Phase II (Gilbane). The TCRA involved the following:

- Surveying radiologically impacted structures and former building sites
- Decontaminating (and demolishing if necessary) buildings and former building sites
- Excavating radiologically impacted storm drain and sanitary sewer lines
- Screening, separating, and disposing of radioactively contaminated excavated materials at an off-site, low-level radioactive waste (LLRW) facility

The radionuclides of concern at Parcel D-1 include cesium-137, cobalt-60, plutonium-239, radium-226, strontium-90, thorium-232, tritium (hydrogen-3), and uranium-235. The cleanup associated with the TCRA for radionuclides meets the RGs established in the ROD (Navy, 2009), as presented in the *Final Radiological Removal Action Report, Radiological Surveys of Buildings and Ground Surfaces, and Storm*

*Drain and Sanitary Sewer Removal, Parcel D-1, Phase 1, Hunters Point Naval Shipyard, San Francisco, California* (CB&I, 2014) and *Removal Action Completion Report, Radiological Remediation and Support, Parcel D-1, Phase II, Hunters Point Naval Shipyard, San Francisco, California* (Gilbane, 2019). Consequently, the RD developed in the DBR (ChaduxTt, 2011a) does not include further remediation for radionuclides.

#### 1.2.3.3 Groundwater

The COCs in groundwater at Parcel D-1 include VOCs and metals and have been addressed by the remedy in consideration of current and reasonably anticipated future land uses. The Navy conducted a treatability study at Parcels G and D-1 in 2008 to evaluate technologies to address VOCs in groundwater (Alliance Compliance Group, 2010). The treatability study addressed the groundwater plumes identified in the ROD (Navy, 2009) at Installation Restoration (IR) Sites 9, 33, and 71 and included additional delineation and assessment of the plumes as well as treatment of two VOC plume areas using zero-valent iron. The VOC plumes at IR Sites 9 and 33 are located on Parcel G. The VOC plume at IR Site 71 overlaps the boundary between Parcels G and D-1. The delineation and assessment phase concluded that treatment was only necessary for VOC plumes at IR Sites 9 and 71. Approximately 148,000 pounds of zero-valent iron was injected at 97 injection locations. The post-injection results from the treatability study showed concentrations of VOCs in groundwater and soil gas decreased. As a result of the treatability study, concentrations of VOCs in groundwater at Parcel D-1 decreased to concentrations below the RGs established in the ROD.

Consequently, the RD developed in the DBR (ChaduxTt, 2011a) does not include further remediation for VOCs in groundwater. Therefore, the DBR proposed monitoring for groundwater and soil gas to evaluate the potential for rebound in concentrations of VOCs after the treatability study.

Groundwater monitoring is conducted throughout HPNS under the basewide groundwater monitoring program (Trevet, 2017). Figure 2 shows wells currently being monitored. For Parcel D-1, the COCs in groundwater are identified as VOCs and arsenic. Additionally, RGs have been developed for select metals (hexavalent chromium, copper, lead, mercury, nickel, and selenium) to monitor for potential impacts to the Bay. In 2012, the VOC monitoring program at Parcel D-1 was optimized because concentrations were below the RGs and were stable or decreasing (CE2-Kleinfelder, 2012). The current monitoring program includes semiannual sampling for VOC and metals analysis for three Bay margin monitoring wells (IR71MW20A, IR22MW16A, and IR55MW02A). VOCs are monitored semiannually at one well (IR71MW20A) because the well currently delineates the downgradient edge of IR-71 East VOC plume in Parcel G (CE2-Kleinfelder, 2012). Metals are monitoring semiannually at two wells (IR22MW16A and IR55MW02A) (Trevet, 2017). During the March 2018 sampling event, tetrachloroethene was the only VOC and copper, hexavalent chromium, and nickel were the only metals detected in groundwater. These compounds did not exceed their respective RGs at Parcel D-1 (Trevet, 2018). Since at least 2004, concentrations of metals and VOCs have remained under their RGs and

trigger levels, with the exception of silver in July 2008 and lead in September 2015 in monitoring well IR22MW16A (Trevet, 2018).

The *Final Remedial Action Monitoring Plan, Parcel D-1, Hunters Point Shipyard, San Francisco, California* (ChaduxTt, 2011b) objectives for these wells are to monitor the potential migration of COCs into previously uncontaminated areas and potential migration toward the Bay and to monitor the changes in concentrations within a plume, including the effects of RAs and previous treatability studies. Current monitoring of these wells will continue in accordance with the *Final Remedial Action Monitoring Plan, Parcel D-1, Hunters Point Shipyard, San Francisco, California* (ChaduxTt, 2011b) because redevelopment has not yet been completed (Trevet, 2018).

#### 1.2.3.4 Soil Vapor

An investigation of potential chemicals in soil vapor was conducted in September 2010 for areas within Parcels B, D-1, G, and UC-2 (Sealaska Environmental Services, 2013). A total of 150 soil gas samples were collected from 110 locations encompassing 89 1-acre grid blocks. In addition, 29 soil samples were collected for geotechnical analysis to obtain physical parameters used for assessing the potential for vapor intrusion. Results from the investigation were evaluated for potential risk to human health using a basewide approach developed for HPNS (ChaduxTt, 2011c). A total of 30 grid blocks were sampled at Parcel D-1. Soil gas results collected from eight blocks indicated a potential risk to a future residential receptor that exceeded $10^{-6}$. VOCs exceeding soil gas action levels in Parcel D-1 included benzene, ethyl benzene, tetrachloroethene, trichloroethene, methylene chloride, and chloroform (Sealaska Environmental Services, 2013). Consequently, the area requiring institutional controls (ARIC) for VOC vapors was recommended to be reduced from all of Parcel D-1 to the eight blocks where the potential risk exceeded $10^{-6}$ (Figure 2).

## 1.3 Deviations from Planning Documents

During the Parcel D-1 Phase II RA, two field change requests (FCRs) were implemented during the execution of this project (Appendix B). The FCRs include the following:

- FCR-001
  - Revised the asphalt density and thickness testing requirement to include in-place testing by nuclear testing methods in addition to core sampling. Asphalt density was tested using nuclear testing methods in accordance with ASTM D 2950, “Standard Method for Density of Bituminous Concrete in Place by Nuclear Methods.” FCR-001 proposed to collect a minimum of three nuclear gauge tests for every 200 tons of asphalt delivered, per ASTM D 2950. A minimum of four core samples were also collected to establish a baseline calibration of the nuclear gauge, after which the testing frequency for core sampling will be reduced to 1 test per every 10 nuclear gauge tests as a quality control/quality assurance measure.

- FCR-002
  - Revised the fence and gatepost depths within the Parcel D-1 Phase II ARIC. Excavation deeper than 2 feet below ground surface (bgs) is prohibited in this radiologically restricted area; therefore, the project drawings required a change from 3 feet to 2 feet maximum depth in this area.

## 1.4 Remedial Action Completion Report Organization

This RACR consists of eight sections and is organized as follows:

- **Section 1.0, "Overview,"** provides an overview of the project, the project schedule, discusses site conditions and background, deviations from planning documents, and the RACR organization.
- **Section 2.0, "Remedial Action Objectives,"** presents the remedial action objectives (RAOs) for this RA.
- **Section 3.0, "Remedial Action Construction Activities,"** describes the RA construction activities.
- **Section 4.0, "Demonstration of Completion,"** provides information to demonstrate completion of the Parcel D-1 Phase II RA described herein and the achievement of the RAOs for soil that were identified in the ROD (Navy, 2009) through the installation and maintenance of the durable cover.
- **Section 5.0, "Ongoing Activities,"** discusses activities currently ongoing at Parcel D-1 to maintain the remedy.
- **Section 6.0, "Community Involvement,"** describes the community involvement activities associated with this RA.
- **Section 7.0, "Certification Statement,"** presents the RACR certification statement.
- **Section 8.0, "References,"** includes a list of documents used to compile this RACR.
- **Appendices A through M—**Responses to agency comments, submittals, pre-construction and mutual understanding meeting minutes, stormwater management paperwork, Air Monitoring Report, construction as-builts, photograph log, water quality monitoring results, final topographic survey, pre-final and final inspection checklist, geotechnical data, gamma walkover survey data, and waste manifests and waste data are included as Appendices A, B, C, D, E, F, G, H, I, J, K, L, and M, respectively.

# 2.0 REMEDIAL ACTION OBJECTIVES

The ROD (Navy, 2009) presents the RAOs for Parcel D-1 COCs in soil and groundwater. The RAOs for Parcel D-1 were developed in conjunction with the regulatory agencies and are listed as follows by medium:

- Soil RAOs:
  - Prevent exposure to PAHs and metals in soil at concentrations above RGs developed in the Human Health Risk Assessment for the following exposure pathways: ingestion of, outdoor inhalation of, and dermal exposure to surface and subsurface soil by industrial workers or construction workers.
  - Prevent exposure to VOCs in soil gas at concentrations that would pose unacceptable risk via indoor inhalation of vapors. RGs for VOCs to address exposure via indoor inhalation of vapors have been superseded based on COC identification information from soil gas surveys. Action levels were established for soil gas, which account for vapors from both soil and groundwater, and were calculated based on a cumulative risk level of $10^{-6}$ using the accepted methodology for risk assessments at HPNS.
- Groundwater RAOs:
  - Prevent exposure by industrial workers to VOCs in the A-aquifer groundwater at concentrations above RGs via indoor inhalation of vapors from groundwater.
  - Prevent or minimize exposure of construction workers to metals and VOCs in the A-aquifer groundwater at concentrations above RGs from dermal exposure and inhalation of vapors from groundwater.
- Radiologically Impacted Soil and Structures RAOs
  - Prevent exposure to radionuclides of concern in concentrations that exceed RGs for potentially complete exposure pathways.

The remedy selected in the ROD (Navy, 2009) includes excavation of soil contaminated with PAHs, removal of existing soil stockpiles that potentially contain COCs, soil vapor controls for VOCs, institutional controls, and a durable cover to provide a physical barrier to minimize contact with metals that are within the naturally occurring background range. This RACR describes the Phase II durable cover component of the final remedy and documents the completion of the RA to address potential COCs in soil, groundwater, and radiologically-impacted soil and structures at Parcel D-1 Phase II. The Parcel D-1 Phase I RA is addressed in the Parcel D-1 Phase I RACR (APTIM, 2018a).

# 3.0 REMEDIAL ACTION CONSTRUCTION ACTIVITIES

RA construction activities included the following:

- Pre-construction activities
- Mobilization
- Utility survey
- Site preparation
- Site maintenance
- Site security services
- Air monitoring
- Topographic survey, field observations, and photographic documentation
- Durable cover installation
- Gamma walkover survey
- Water quality monitoring
- Protection and extension of existing monitoring wells
- Installation of fence and signage
- Final as-built survey and installation of survey monument
- Waste characterization, disposal, and recycling
- Completion inspections
- Site cleanup and demobilization

## 3.1 Pre-Construction Activities

Pre-construction activities included permitting and notifications, meetings, and establishing temporary construction facilities. The following subsections describe the activities performed in preparation for remediation work.

### 3.1.1 Permitting and Notifications

APTIM obtained necessary authorizations from the HPNS Caretaker Site Office (CSO) and the Resident Officer in Charge of Construction (ROICC) for performing the RA at Parcel D-1. Prior to field activities, APTIM notified the Navy Remedial Project Manager (RPM), ROICC, CSO, appropriate fire department personnel, and HPNS security as to the nature of the anticipated work.

The work was conducted in accordance with Section 121(e) of Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S. Code, Section 9621[e]), as amended, which states that no federal, state, or local permits will be required for the portion of any removal or RA conducted entirely on site. Because this work was executed to support an RA and was conducted entirely on site, no other permits and fees were required for the RA. However, substantive provisions of applicable or relevant and appropriate requirements specified in the ROD (Navy, 2009) were fulfilled.

APTIM maintains a current annual excavation permit from the California Occupational Safety and Health Administration (Permit No. 2018-918284). The required 24-hour notification was provided before excavation activities began. Underground Service Alert (800 227 2600) was notified to obtain utility clearance a minimum of 72 hours prior to any intrusive activities. The permits and notifications were maintained for the duration of the field activities.

### 3.1.2 Pre-Construction and Mutual Understanding Meeting

Prior to mobilization, a pre-construction and mutual understanding meeting was held on July 24, 2018. The attendees included the Navy RPM, the ROICC, the CSO representative, and APTIM personnel. The purpose of this meeting was to develop a mutual understanding of the field activities and the contractor quality control details, including forms to be used, administration of on-site work, and coordination of the construction management and production. Appendix C includes the meeting agenda and sign-in sheet.

### 3.1.3 Contractor Quality Control Meetings

Contractor quality control meetings were held on a weekly basis throughout the course of fieldwork. Per the United Facilities Guide Specification Section 01 45 00.00 20, at a minimum, the Project Quality Control Manager conducted and attended these meetings with the project team, including subcontractor and vendor representatives as appropriate. The Navy team, including the RPM, the ROICC, and the CSO, attended as appropriate.

### 3.1.4 Health and Safety Meetings

Daily tailgate safety meetings were held before starting work. Construction staff, including subcontractors, attended these meetings and signed a tailgate safety meeting form. The Site Safety and Health Officer held the meetings and covered various safety issues.

### 3.1.5 Temporary Construction Facilities

An exclusion zone was established around the work area and delineated with temporary fencing and had appropriate signage posted. Temporary facilities were mobilized to the site and included restroom(s), hand washing station(s), security fencing, stormwater runoff controls, and secure storage (conex) boxes for storage of materials. Figure 3 shows the construction site layout.

## 3.2 Mobilization

Mobilization activities included site preparation, movement of equipment and materials to the site, and orientation and training of field personnel. On July 24, 2018, the appropriate Navy personnel, including the Lead RPM, RPM, ROICC and CSO, were notified regarding the planned schedule for mobilization and site remediation activities.

Upon receipt of the appropriate authorizations, field personnel, temporary facilities, and construction materials were mobilized to the jobsite on August 13, 2018. Dedicated laydown areas established in the field during mobilization were used for short-term storage of equipment and materials.

## 3.3 Utility Survey

A geophysical survey was performed of the Phase II area on August 13, 2018, following a review of existing as-built drawings of Parcel D-1. The geophysical survey was conducted to identify any active subsurface utilities that may exist via ground-penetrating radar and/or an electromagnetic instrument. Encountered utility lines were determined to be inactive following consultation with the subject utility company.

## 3.4 Site Preparation

Best management practices (BMPs) were implemented along the site perimeter and around stockpiles to prevent sediment from entering and leaving the site in accordance with the Stormwater Management Plan included as Section 5.0 in the Environmental Protection Plan (EPP; Appendix B to the RAWP; CB&I, 2016). Vegetation was cleared and grubbed as appropriate, and debris was removed for disposal. Additional debris and refuse were removed from within buildings at the site, in accordance with the Waste Management Plan (Appendix A to the RAWP; CB&I, 2016) and as described in Section 3.14.

Prior to intrusive activities, vegetation was cleared from Parcel D-1 Phase II. The vegetation was managed as debris in accordance with the Waste Management Plan (Appendix A to the RAWP; CB&I, 2016). Mechanical equipment was used to cut the overgrown vegetation. Weed-eaters/whackers and chainsaws were used to clear the vegetation growing over areas that were sloped, uneven, bumpy, or too densely vegetated to allow for mechanical equipment access.

Aggressive dust control methods were implemented during earthwork and soil-disturbing activities by continuously wetting the work areas in accordance with the Dust Control Plan included as Section 6.0 in the EPP (Appendix B to the RAWP; CB&I, 2016). On-site stockpiles and disturbed areas not actively being worked were sprayed with dyed (green) Gorilla Snot® to stabilize the soil and minimize dust generation.

## 3.5 Site Maintenance

Good housekeeping practices were followed during site work. Periodic cleanup was conducted to keep the site and adjacent properties free from accumulations of waste materials, rubbish, and windblown

debris resulting from operations. The field engineering staff inspected BMPs prior to, during, and after precipitation events following the criteria established in the Stormwater Pollution Prevention Plan (EPP Section 5.0, Appendix B to the RAWP; CB&I, 2016). During the dry season, BMP inspections were conducted at least once weekly. Appendix D includes inspection reports. Streets affected by the work were swept clean. Storage, staging, and work areas, along with stairs and walkways on the site, were kept free of obstructions and debris. Tools and materials were neatly stored in a conex box.

## 3.6 Air Monitoring

Prior to commencing earthmoving activities, air monitoring stations were set up upwind and downwind of the construction activities (Figure 3). Air monitoring was performed in accordance with the EPP (Appendix B to the RAWP; CB&I, 2016). The project monitored and sampled for particulate matter less than 10 microns in diameter, total suspended particulates, arsenic, lead, manganese, and asbestos during earthmoving activities. Data were not collected from September 24 through 26, 2016, because there were no earth moving activities on these dates. Data were not collected on October 2, 2018, because of rain.

None of the construction activities exceeded the established threshold limit values at any time during project execution. Appendix E provides air monitoring results.

## 3.7 Topographic Survey, Field Observations, and Photographic Documentation

CBL Professional Services Inc. performed a pre-construction topographic survey, under the direction of a State of California-licensed land surveyor, on August 20 and 21, 2018. Data from this survey were used to establish horizontal and vertical controls for the site, and to assess the pre-RA site topographic features, such as high and low points and the limits of the durable cover, which provided the basis for calculating the cut and fill quantities. Appendix F provides the pre-construction topographic survey.

Field observations were recorded daily and submitted electronically to the RPM, ROICC, and CSO on a daily basis as part of the Daily Production Report and Quality Control Report.

Photographs of the site were collected during the implementation of the RA activities. Photographs were taken during each aspect of work in order to provide a detailed photographic history of the RA (Appendix G).

## 3.8 Durable Cover Installation

The selected remedy at Parcel D-1, as specified in the ROD (Navy, 2009) and detailed in the DBR (ChaduxTt, 2011a), includes the installation of a durable cover intended to prevent human exposure to potential residual concentrations of COCs in the underlying soil (Navy, 2009). The durable cover consists of asphalt paving (new or existing), concrete, or the existing building foundations provided the foundations are intact and in good condition. Figure 4 presents a conceptual cross section of the asphalt

pavement cover. The final cover grade for the site can be found in the as-built drawings (Appendix F). During construction activities, dust was mitigated per the Dust Monitoring Plan included as Section 6.0 of the EPP (Appendix B to the RAWP; CB&I, 2016).

### 3.8.1 Seawall Stabilization

Repairs were necessary to the subgrade surface behind the Parcel D-1 Phase II seawalls and along portions of the piers to provide a stable vertical surface for tying the durable cover. The seawalls along Berths 21, 22, and 29 were stabilized with ¼-ton (18-inch) riprap (Figure 5). Before the riprap was put in place, the debris and refuse on this portion of the site were removed or cut at grade to provide a clean surface for the riprap. A layer of geotextile filter fabric (Mirafi 140N) was placed on the exposed soil to minimize fines from entering the Bay as well as to prevent the underlying soil from "piping" through the stone. Riprap was placed over the geotextile fabric starting from the bottom of the area and continued up the slope. Distribution of the various sizes of riprap was obtained by controlled dumping of loads during final placement. Where possible, riprap was placed from the edge of the new asphalt cover to the limit of the existing seawall. In areas where the seawall was corroded beyond use, or did not exist, riprap was placed to extend from the edge of new asphalt pavement, beyond the limit of the seawall, and out to the low tide line. Compaction of riprap was not required and placement was finished to present an even surface, free of mounds and windrows. Figure 6 provides a typical riprap stabilization detail.

During seawall stabilization work, BMPs were implemented to minimize sediments from entering the Bay. BMPs included fiber rolls, sand bags, and the use of anchored turbidity curtains. Section 3.10 discusses water quality monitoring.

### 3.8.2 Existing Surface with No Asphalt

New asphalt pavement cover was installed over the portions of the site (Figure 5). The newly constructed durable cover included a minimum 4 inches of untreated aggregate base course (ABC) material and a minimum 2 inches of asphaltic concrete (AC) wear surface, for a total minimum cover thickness of 6 inches (Figure 4). Clean imported fill and regrading over the site was used to build up the existing ground surface where necessary to meet the prescribed foundation grade prior to construction of the durable cover.

Parcel D-1 is generally flat, and some minimal grading of the existing surface was required for preparation of the foundation surface for construction of new asphalt pavement. Low-lying areas were filled with clean import material to minimize the accumulation of stormwater. Clean fill was imported during the Parcel D-1 Phase I RA with approximately 1,300 cubic yards leftover from the Phase I RA activities. The material was temporarily staged on site for use during Phase II. Import fill was previously sampled and met all geotechnical, chemical, and radiological requirements. Chemical, radiological, and geotechnical testing results of import fill were included in Appendix G of the Parcel D-1 Phase I RACR (APTIM, 2018a). No additional fill material was imported to the site during the Phase II construction.

Open utility vaults within the Phase II work area were filled with import material and sealed prior to subgrade preparation. Vaults near the shoreline at Berth 22 and with Building 523 that could not be filled with import material were sealed prior to subgrade preparation. The open vaults at Berth 22 were covered with steel plates, which were tack welded in place to prevent entrance, while the openings within Building 523 were covered with ¾-inch plywood and sealed with foam to provide a watertight surface and prevent unauthorized entrance.

Water flow patterns were generally maintained toward the Bay and the existing stormwater conveyance features. In accordance with the RAWP (CB&I, 2016), the 10-foot perimeter surrounding each site building was sloped to a minimum 1 percent grade to drain stormwater and minimize accumulation in the vicinity of the building foundations. Care was taken to not obstruct building entry points with the final cover, and the final cover was graded such that it would not extend above the elevation of the foundation slab. Foundation slabs below grade were removed or paved over with new AC. The remainder of the site was graded with a minimum 0.5 percent slope to drain water toward the existing drainage channels thereby minimizing the accumulation of water over the site.

Existing subgrade and imported fill left over from Phase I were used to meet the prescribed subgrade elevation. The surplus fill from Phase I was tested for grain size, Atterberg limits, and moisture during the Phase I construction and was deemed suitable for use (Appendices G and H of the Parcel D-1 Phase I RACR [APTIM, 2018a]). The re-graded subgrade was compacted as necessary before installation of the ABC layer. Site soil that did not meet the compaction requirements were reworked and retested as necessary to achieve the required design specifications. During placement of soil fill, continuous observation by a designated member of the field engineering staff ensured that materials met the suitability requirements and that moisture content was controlled to ensure compaction specifications were met. Smith-Emery Geotechnical Services, a third party American Association of State Highway and Transportation Officials certified geotechnical-testing firm, performed geotechnical laboratory testing and field confirmatory tests. Appendix K provides compaction testing results for the re-graded subgrade.

Following grading to meet the prescribed subgrade elevations, a gamma walkover survey (GWS) was performed over ARIC (Figure 3). Section 3.9 discusses the GWS. Following grading and completion of the GWS (where required), ABC was added and compacted directly over the prepared subgrade. The base course was added to a final thickness of at least 4 inches. Smith-Emery Geotechnical Services tested ABC was for compaction. Appendix K provides compaction reports.

Following compaction of the newly placed ABC layer, hot mix AC was added as the final wear surface course to a compressed thickness of 2 inches (minimum) to complete the durable cover. As described in this RACR, hot mix AC is composed of aggregate bound together into a solid by an asphaltic cement (see (1) Submittal 09, “Bituminous Mix Design [Asphalt]” [Appendix A of the Parcel D-1 Phase I RACR {APTIM, 2018a} and (2) Submittal 003, “Bituminous Mix Design” [Appendix B of this RACR]). Subcontractor, Granite Construction Company of Watsonville, California, with quality control oversight from APTIM and

Smith-Emery Geotechnical Services, performed installation of the hot mix AC layer. The mix was manufactured at an off-site mixing plant and transported to the site for spreading by a mechanical spreader. In accordance with the DBR (ChaduxTt, 2011a) and the Testing Plan and Log (Appendix K). The uncompacted mix was tested for extraction in accordance with ASTM D 2172, "Standard Test Methods for Quantitative Extraction of Asphalt Binder from Asphalt Mixtures," and sieve analysis in accordance with American Association of State Highway and Transportation Officials T 30. Asphalt density and thickness were verified by in-place testing, by nuclear testing methods in addition to core sampling, as described in FCR-001 (Appendix B). Asphalt density was tested using nuclear testing methods in accordance with ASTM D 2950, "Standard Method for Density of Bituminous Concrete in Place by Nuclear Methods." In accordance with FCR-001, a minimum of three nuclear gauge tests for every 200 tons of asphalt delivered were collected per ASTM D 2950. Prior to testing, four core samples were collected to establish a baseline calibration of the nuclear gauge, after which the testing frequency for core sampling was reduced to 1 test per every 10 nuclear gauge tests as a quality control/quality assurance measure. Appendix K provides geotechnical compaction results reports.

### 3.8.3 Existing Asphalt Pavement Requiring New Asphalt or Asphalt Repair

Several areas across the Parcel D-1 Phase II site were paved with an existing asphalt surface prior to the start of construction. The existing asphalt pavement at Parcel D-1 was visually inspected for condition of the pavement surface and indications of subsurface conditions or deficiencies. Areas deemed unsuitable for incorporation into the final site durable cover (e.g., areas where cracking in the existing asphalt surface was larger than ¾-inch wide, or extended over a large area) were removed and/or paved over a new asphalt surface. In general, the remaining existing asphalt surface (Figure 3) was determined to be in good condition and required minimal repairs to meet the requirements of the final durable cover (Navy, 2009). Repairs to the existing asphalt surface were limited to areas where cracks were between ¼-inch and ¾-inch wide. Treatment of the cracks at Parcel D-1 Phase II required installation of a hot-poured crack sealant in accordance with Specification 32 01 17.16 of the DBR (ChaduxTt, 2011a).

### 3.8.4 Existing Building Foundations

Six buildings are located within Parcel D-1 Phase II: Buildings 307, 381, 523, 525, 526, and 530 (Figure 3). There are also several former building slabs and concrete utility vaults located throughout the parcel (Appendix F). Existing building foundations and slabs, where intact and in good condition, constitute a durable cover as described in the ROD (Navy, 2009).

Each building slab and foundation were inspected to confirm the condition and make repairs as necessary. Prior to inspections, the buildings were cleared of debris and the building floors were cleaned to facilitate inspection. During inspection and building cleanout, asbestos floor tile was observed in Buildings 526 and 530. Bayview Environmental Services, Inc., a California-licensed asbestos abatement contractor, removed and disposed of the asbestos. Asbestos, general refuse, debris, and other loose materials were disposed in accordance with applicable standards, as discussed in Section 3.14.

Building 523 was the former saltwater pump house and fire protection pumping station. The concrete floor, while providing an adequate barrier from the underlying soils, was chipped and flaking in several areas (Photograph 36 in the photograph log [Appendix G]). The foundation of Building 523 was restored as well as practical by cleaning the chipped concrete and applying a fresh coat of concrete mix following the specifications in Section 03 30 00 of the DBR (ChaduxTt, 2011a) over the floor. During building clean out, several ceramic electrical insulators were discovered in the building (Photograph 44 in the photograph log [Appendix G]). Based on historical knowledge, ceramic insulators at HPNS often contain naturally occurring radioactive materials (NORM); therefore, the insulators were transferred to the HPNS Basewide Radiological contractor for subsequent disposal by the Navy's LLRW contractor. Section 3.14 discusses waste disposal.

Crawl spaces openings in Building 381 were secured with woven wire mesh as specified in Section 32 31 26, "Security," of the DBR (ChaduxTt, 2011a).

During the inspection of Building 525, the foundation was determined to be intact and in a condition suitable as a durable cover; however, previous contractors within the building had applied an asphalt sealer to the southern end of the building, which was flaking up in several locations. To restore the condition of the building foundation, a fresh coat of asphalt sealer was applied.

APTIM inspected building foundations and made note of cracks smaller than ¼ inch during the inspections. Cracks larger than ¼ inch were sealed with QUIKRETE® concrete crack sealant, conforming to ASTM C 1107, "Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)," as specified in Section 03 30 00 of the DBR (ChaduxTt, 2011a) (Photograph 60 in the photograph log [Appendix G]).

## 3.9 Gamma Walkover Survey

A GWS of Parcel D-1 Phase II was performed in a portion of Parcel D-1 Phase II following site grading and prior to installation of the durable cover to identify any potential LLROs that may be present within the top 2 feet of the subgrade surface. During the Phase II radiological TCRA, radiological anomalies were discovered outside areas identified as radiologically impacted in the *Final Historical Radiological Assessment, Volume II, History of the Use of General Radioactive Materials, 1939—2003, Hunters Point Shipyard, San Francisco, California* (Naval Sea Systems Command, 2004). The LLROs do not appear to be from surface-related activities and their suspected source is from material dredged from the Bay used to create the current shoreline (Gilbane, 2019). Figure 3 shows the approximate location of the 1946 original shoreline and the ARIC. Implementation of land use and activity restrictions as prescribed in the ROD (Navy, 2009) will appropriately mitigate any risk to human health relating to the presence of LLROs in material greater than 2 feet bgs.

The GWS was performed in areas where dredged material was placed (Figure 3). The GWS area (also known as the ARIC) is approximately 52,000 square meters (560,000 square feet). The radiological

survey included gamma count rate scanning and, as required, static gamma surveys. No potential LLROs were identified; therefore biased surface soil sampling was not required and not performed.

The following subsections describe the survey instrumentation, reference areas and determination of investigation levels (ILs), the data quality objectives, and radiological survey activities at Parcel D-1 Phase II.

### 3.9.1 Survey Instrumentation

Surveys for gamma radiation were performed primarily using the Radiation Solutions, Inc. (RSI) RS-700 gamma spectroscopy system, which consists of two 4-inch-by-4-inch-by-16-inch (256-cubic-inch) sodium iodide (NaI) detectors. The system was coupled with a RS-701 console and an external Trimble Global Positioning System antenna. In areas inaccessible to the RSI system, such as the erosion areas along the seawalls, a Ludlum Model 44-20 3-inch-by-3-inch NaI gamma scintillation detector coupled with a Ludlum Model 2221 ratemeter/scaler was used. The system was paired with a Trimble Global Positioning System unit to log measurements and positional data during the scans. The components were mounted to a cart for most of these surveys. The cart was not used for the GWSs conducted in the alcove area due to its uneven surface.

The RSI RS-700 gamma surveys were performed at a rate of 0.25 meters per second, in accordance with the *Final Technical Basis Document, Gamma Scanning Surveys, Former Naval Station Treasure Island, San Francisco, California* (CB&I, 2015). The detectors were maintained at a constant 15.24 centimeters above the ground with each pass offset approximately 112 centimeters from the previous pass. The 3-inch-by-3-inch NaI gamma surveys were performed at a rate of 0.5 meters per second as per the *Final Technical Basis Document, Gamma Scanning Surveys, Former Naval Station Treasure Island, San Francisco, California* (CB&I, 2015). The detector was maintained at 10 cm above the ground, with each pass overlapping the previous by approximately 1 foot to ensure 100 percent coverage.

Survey instruments were within annual calibration during use at Parcel D-1. Appendix L includes instrument calibration records. Prior to each day's use in the field, the survey instruments underwent calibration verification, physical inspection, battery check, and a source response quality control check.

### 3.9.2 Reference Areas

Per *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)* (U.S. Nuclear Regulatory Commission et al., 2000), a reference area is an area that should have similar physical, chemical, radiological, and biological characteristics as the radiologically impacted areas being investigated, but has not been contaminated by site activities.

The surface of the GWS area was mostly soil with some asphalt areas. The soil reference area used was located near Building 810 (approximately 500 square meters) (Figure 1), as identified in the RAWP Addendum (APTIM, 2018b). An asphalt reference area was not identified in the RAWP Addendum;

however, the RAWP Addendum stated that additional reference areas may be established with the approval of the Navy and with consultation from regulatory agencies. An approximately 600 square meter asphalt reference area was identified in the western portion of Parcel D-1 (Figure 1). The asphalt reference area was selected because the asphalt mix and age are likely to be similar to the asphalt that was gamma surveyed. The area was also confirmed to not be contaminated by site activities. Although much of HPNS is covered with asphalt, most of the asphalt has been installed recently as durable covers. Because asphalt mixes vary depending on the source and date, the durable covers in Parcels B, C, UC-1, UC-2, and UC-3 are not considered to be similar to Parcel D-1 Phase II asphalt. The Navy notified the agencies of the asphalt reference area via email on September 12, 2018.

The soil and asphalt reference areas were scanned with the RSI RS-700 system to collect background data for several regions of interest (ROIs) covering radium-226 specific gamma emissions, total gamma counts, as well as other NORM-related ROIs such as potassium-40. Twenty static measurements were also collected from each reference area with the RSI RS-700 system to develop ROI-specific critical levels for static measurements.

The soil reference area was also scanned with the 3-inch-by-3-inch NaI detector to determine the scanning IL set at the mean plus 3 standard deviations of the data set. Twenty one-minute static measurements were also collected from the soil reference area to determine the static IL. Table 2 provides the soil scanning IL for the NaI detector.

## 3.9.3 Review of Data Quality Objectives

The following subsections summarize the data quality objectives identified in the RAWP Addendum (APTIM, 2018b).

### 3.9.3.1 Step One—State the Problem

During the second phase of the Parcel D-1 time-critical removal action, LLROs were discovered in areas that were not considered radiologically impacted. The Navy determined these LLROs were within the fill soil used to expand the shipyard after 1946. As a conservative measure, a GWS was performed within the Parcel D-1 Phase II ARIC (Figure 3) to ensure no LLROs were present in the top 2 feet of soil of the subgrade surface, following site grading and prior to installation of the durable cover.

### 3.9.3.2 Step Two—Identify the Decision

The decision to be made is as follows: “Do the survey and sampling results support a conclusion that there are no LLROs present in the top 2 feet of soil in the Parcel D-1 Phase II GWS area?”

#### 3.9.3.3 Step Three—Identify Inputs to the Decision

Radiological surveys included the following:

- Gamma scan survey data
- Gamma static measurement data

No potential LLROs were identified; therefore biased surface soil sampling was not required and not performed.

#### 3.9.3.4 Step Four—Define the Study Boundaries

Figure 3 shows the lateral spatial boundary for this study is the Parcel D-1 Phase II GWS area. The area is approximately 52,000 square meters (560,000 square feet). The vertical boundary of the project area is the top 2 feet of the subgrade ground surface.

Data collection occurred from September 5 through October 9, 2018. There were no practical temporal constraints to data collection. However, radiological screening did not take place during periods of heavy rain or precipitation.

#### 3.9.3.5 Step Five—Develop a Decision Rule

The decision rules are as follows:

- If the results of the survey are comparable to background and biased sample results (if collected) are consistent with the release criteria, the data will be used to support a conclusion that no LLROs remain in the top 2 feet of the study area.
- If the results of the survey exceed the release criteria and the elevated activity is related to historical Navy operations, the site will be further investigated by further evaluating the data, and/or collecting additional data, and/or remediating contamination, as appropriate, in consultation with the Navy.

#### 3.9.3.6 Step Six—Specify Limits on Decision Errors

Limits on decision errors are set at 5 percent.

#### 3.9.3.7 Step Seven—Optimize the Design for Obtaining Data

Operational details for the radiological survey process were developed and further discussed in Section 6.1.3 of the RAWP Addendum (APTIM, 2018b). The theoretical assumptions are based on guidelines contained in *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)* (U.S. Nuclear Regulatory Commission et al., 2000).

### 3.9.4 Gamma Walkover Survey Results

GWSs were performed from September 5 through October 9, 2018. To facilitate survey tracking and data review, the GWS area was divided into two areas: one area for the former radiological screening yard (RSY) area and a second area for the Building 500 Series area (Figures 7 and 8, respectively). The erosion areas along the seawall were inaccessible to the RSI RS-700 system; therefore, a cart-mounted 3-inch-by-3-inch NaI detector system was used for scanning in these areas. The former RSY area contained both soil and asphalt surfaces. GWSs were performed and analyzed separately based on each material type. The asphalt RS-700 data was combined into one dataset for statistical analysis. Due to large surface area and quantity of data collected from the soil areas of the former RSY area, the RS-700 data were split into four datasets for statistical analysis in accordance with Section 6.1.3 of the RAWP Addendum (APTIM, 2018b).

A total of 68 locations were identified for follow-up static investigations within the asphalt sections of the former RSY area and 63 locations were identified for follow-up static investigations within the soil sections of the former RSY area. The 3-inch-by-3-inch NaI GWSs in the erosion areas of the former RSY area were below the instrument-specific scan IL; therefore, no follow-up static measurements were required in those areas. Table 2 presents the scan range observed for the GWSs. Figure 7 shows follow-up locations. A 1-minute static measurement was collected at each follow-up location with the RSI RS-700, which provided a spectral analysis of the location. The static data were compared against ROI-specific critical levels to determine if biased sampling was necessary. All asphalt and soil follow-up static measurements in the former RSY area were below the ROI-specific critical levels. Therefore, no biased sampling was required. Appendix L contains the GWS data and follow-up spectra. Appendix L provides descriptive statistics for the GWSs. Figure 7 shows GWS coverage for the former RSY area.

The Building 500 Series area consisted of soil only (no asphalt) and was scanned with the RSI RS-700 with the exception of the erosion areas, which were scanned with the 3-inch-by-3-inch NaI detector system. Due to large surface area and quantity of data collected from the soil areas of the Building 500 Series area, the RS-700 soil data was split into four datasets for statistical analysis in accordance with Section 6.1.3 of the RAWP Addendum (APTIM, 2018b).

A total of 111 locations were identified for follow-up static investigations with the RSI RS-700 in the Building 500 Series area. The 3-inch-by-3-inch NaI GWSs in the Building 500 Series area erosion areas were all below the instrument-specific scan IL; therefore, no follow-up static measurements were required in those areas. Figure 8 shows follow-up locations. Static measurements were below the ROI-specific critical levels. Therefore, no biased sampling was required. Appendix L contains the GWS data and follow-up spectra and descriptive statistics for the RSI GWSs. Table 2 presents the scan range observed for the GWSs. Figure 8 shows GWS coverage for the Building 500 Series area.

The GWS included gamma scan survey data and static measurement data. Because static measurements were below the ROI-specific critical levels, biased sampling was not required. Based on the GWS results, no LLROs were detected in the subgrade of the Parcel D-1 Phase II ARIC.

## 3.10 Water Quality Monitoring

Prior to commencing seawall stabilization work, a turbidity curtain was deployed surrounding the section of seawall actively worked on to prevent sediments from entering the water column and the Bay. The turbidity curtain was installed in accordance with the manufacturer's instructions and was anchored to the piers and/or seawalls to fully encompass each area of repair. As part of the weekly BMP inspections, the turbidity curtain was routinely inspected (Appendix D). The turbidity curtain was adjusted and/or repaired as needed throughout the project.

During seawall stabilization construction activities, water quality monitoring was performed daily for dissolved oxygen, pH, and turbidity. Prior to beginning seawall stabilization work, water quality monitoring for dissolved oxygen, pH, and turbidity was performed from August 28 through 31, 2018, to establish background values. Water quality monitoring was performed at one location approximately 20 feet outside the turbidity curtain (at the point of compliance), adjacent to the active work area during seawall stabilization construction activities. Monitoring was performed from September 10 through October 19, 2018, on days seawall stabilization activities took place. The results of the readings from the location outside the curtain were compared to the background values to evaluate the effectiveness of in-place controls. Appendix H includes water quality monitoring results. Visual indications of turbidity were not observed during seawall work; therefore, monitoring inside turbidity curtains was not performed.

## 3.11 Protection and Extension of Existing Monitoring Wells

Five existing monitoring wells are located within Parcel D-1 Phase II (Figure 3). Monitoring well IR17MW13A could not be located during fieldwork. Efforts were made to locate the well including surveying the location and excavating in the vicinity of the surveyed location. Monitoring well IR17MW13A is presumed to have been previously abandoned.

During grading activities in the eastern portion of Phase II, an unknown monitoring well was discovered (Photograph 74 in the photograph log [Appendix G]). Based on information provided in reference documents, the monitoring well is most likely IR08MW39A, which is identified as decommissioned with an unknown date in the DBR (ChaduxTt, 2011a). The coordinates for the unknown well were recorded for decommissioning at a later date and are follows: Northing: 449,708.66, Easting: 1,460,596.72, Elevation: 4.87. The horizontal coordinates are based on the North American Datum of 1927 (NAD 27) Zone III (Hunters Point West 1 PID HT0613); the vertical elevation is based on the National Geodetic Vertical Datum of 1929 (NGVD 29).

During fieldwork, the identified monitoring wells were protected. Once paving was complete, the five monitoring wells were extended to meet the final grade. The wells were extended using a polyvinyl chloride extension and a solvent weld schedule 40 polyvinyl chloride coupling, as shown on Drawing C5 (Appendix F). New concrete pads, sloped to drain away from the wells, and well boxes flush to the completed durable cover surface were installed where needed. New elevations were surveyed (Table 3).

## 3.12 Installation of Fence and Signage

Following completion of paving, approximately 3,000 feet of fence and two entrance gates were installed along the Parcel D-1 Phase II boundary (Figure 5). The fence and gate were installed along Manseau, Hussey, Mahan, and H Street. Signs were posted at the Phase II entry point and along the fence at an approximately 200-foot spacing to warn against trespassing and the hazards associated with the site per specifications provided in the design drawings included in the DBR (ChaduxTt, 2011a). Because a portion of the fence is within the ARIC, FCR-002 was submitted to revise the fence and gatepost depths (Appendix B). Excavation beyond 2 feet bgs is restricted in the ARIC; therefore, the fence and gatepost depths were revised from 3 feet bgs to 2 feet bgs. Fence, gate, and signage details are provided on the as-built drawing (Appendix F).

## 3.13 Final As-Built Survey and Installation of Survey Monument

Following completion of construction activities, the durable cover was surveyed by the California-licensed land surveyor, CBL Professional Services Inc., on December 20 and 21, 2018. The fence line and elevations for the extended monitoring wells were also surveyed. A permanent survey monument was installed on the cover surface, as shown in Appendix F. The monument is a brass disk set in concrete and was located and protected as needed to prevent damage. Appendix F includes the final as-built survey. Appendix I includes the as-built topographic survey, signed by CBL Professional Services, Inc.

## 3.14 Waste Characterization, Disposal, and Recycling

Several waste streams resulted from the Parcel D-1 Phase II field activities. These waste streams included soil and debris, metal debris, creosote treated wood, used personal protective equipment (PPE), and miscellaneous trash and debris. Table 4 summarizes waste type, waste profile number (if applicable), dates of transportation, disposal weight/volumes, waste class, and disposal facilities. In accordance with HPNS procedures, all material passed through the HPNS radiological portal monitor and the truck tire wash prior to leaving the base.

### 3.14.1 Soil and Debris

During the Phase I RA, small quantities of soil were generated from Buildings 308 and 369. The soil was containerized in two 95-gallon over-pack drums and staged on site, pending waste characterization and off-site disposal during the Phase II portion of the RA. Approximately 15 cubic yards of soil was generated during installation of the permanent fence and gate. The waste streams were sampled and

characterized as non-hazardous waste *[pending confirmation from the transportation and disposal subcontractor]*.

Approximately 204 tons of construction debris (including green waste) were generated from the Phase II RA activities. The debris was disposed as non-hazardous construction debris and transported off site from August 16 through October 22, 2018.

Table 4 summarizes waste type, dates of transportation, disposal weight/volumes, waste class, and disposal facilities. Appendix M provides waste manifests and data for the soil.

### 3.14.2 Metal Debris

Approximately 17 tons of metal debris (scrap metal) were recycled during the Parcel D-1 Phase II RA. The metal was transported to the scrap metal recycler, Sims Metal Management Recycling Center located in Richmond, California. Table 4 summarizes dates of transportation, disposal weight/volumes, waste class, and disposal facilities.

### 3.14.3 Other Waste

During clearing and grubbing, railroad track and creosote treated railroad tie waste were generated. The railroad ties were consolidated and disposed of as non-hazardous special waste. Appendix M includes the waste manifests.

Debris originating from Building 523 included ceramic electrical insulators. Based on historical knowledge, ceramic insulators at HPNS often contain NORM; therefore, the insulators were transferred to the HPNS Basewide Radiological contractor for subsequent disposal by the Navy's LLRW contractor.

Bayview Environmental Services, Inc., a California-licensed asbestos abatement contractor, removed and disposed of the asbestos from Buildings 536 and 530 (Section 3.8.4). Approximately 2 cubic yards of hazardous waste (friable asbestos containing material) and 6 cubic yards of non-hazardous waste (non-friable asbestos debris) were generated and disposed. Paint chips were also observed on the floor of Building 526. Based on the age of the building, the paint chips were assumed to be lead-containing paint. Paint chips were drummed and disposed as hazardous waste. Appendix M includes the waste manifests.

Lighting ballasts were found in Building 369 during the Parcel D-1 Phase I RA. The ballasts were contained in one 95-gallon over-pack container and staged on site pending waste characterization and off-site disposal during the Phase II portion of the RA. The lighting ballasts were classified as Toxic Substances Control Act waste because the ballasts may contain polychlorinated biphenyls *[pending confirmation from the transport and disposal subcontractor]* (Table 4).

### 3.14.4 Used Personal Protective Equipment

On-site activities were performed in Level D PPE. Used PPE was consolidated and disposed as general trash.

## 3.15 Completion Inspections

Prior to demobilization, a pre-final site walk of Parcel D-1 Phase II was held with the Navy on March 12, 2019. During this site walk, the Project Quality Control Manager generated a punch list of items to be corrected. The punch list items were addressed once completed, a final site walk inspection was scheduled. The final site inspection was performed on Month XX, 2019. Appendix J provides the pre-final and final inspection reports.

## 3.16 Site Cleanup and Demobilization

Site cleaning activities included removal of excess construction material, BMPs, wood, debris, and other foreign material; and removal of construction equipment and storage boxes. Temporary facilities, including staging areas, containment areas, and temporary fencing, were removed from the work area. Demobilization was completed on Month XX, 2019.

# 4.0 DEMONSTRATION OF COMPLETION

The RA is deemed to be complete when the RAOs are met. Table 5 summarizes the RAOs for Parcel D-1 Phase II and how they were achieved through proper implementation and satisfactory completion of the final remedy in accordance with the RD, and will continue to be achieved through development and implementation of the post-construction maintenance, repairs, monitoring, and institutional controls. The Parcel D-1 Phase I RA is addressed in the Parcel D-1 Phase I RACR (APTIM, 2018a).

# 5.0 ONGOING ACTIVITIES

Ongoing activities associated with the final remedy at Parcel D-1 include monitoring and maintenance of the durable cover installed as part of this remedy and implementation of LUCs related to the durable covers. The following subsections describe the ongoing components of the remedy.

## 5.1 Monitoring and Maintenance of Durable Cover

The Parcel D-1 durable cover (Phase I and II), including stabilized seawalls cover, asphalt pavement cover, and repaired building foundations, will continue to be inspected, maintained, and repaired according to the *Final Post-Construction Operation and Maintenance Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* (APTIM, 2018c). In general, any deficiencies that reduce the effectiveness of the cover to protect human health and the environment will be corrected. In some cases, damaged areas may need to be temporarily secured to prevent access by the public while repairs are planned and implemented.

## 5.2 Land Use Controls

The LUC objectives for Parcel D-1 Phase II that apply to the cover design presented in the DBR (ChaduxTt, 2011a) include maintaining the integrity of the cover. The DBR included fencing and signs to control access as part of the remedy; however, fencing and signs are not requirements of the ROD (Navy, 2009) and are not necessary after the site is transferred and redeveloped. The LUCs are described in the *Land Use Control Remedial Design, Parcel D-1, Hunters Point Shipyard, San Francisco, California* (LUC RD; ChaduxTt, 2011d). The current LUC RD will be revised to include additional requirements related to the discovery of LLROs in the Parcel D-1 Phase II area.

Parcel D-1 is owned by the federal government under the jurisdiction of the Navy and is planned to be transferred to the CCSF. The *Amended Hunters Point Redevelopment Plan* (Former SFRA, 2010) contains scenarios that include residential reuses for portions of Parcel D-1. Residential uses could include dwelling units, live/work units, and group housing, as well as related institutional uses such as schools and child-care facilities. The procedures to modify the durable cover are restricted throughout Parcel D-1, unless Federal Facilities Agreement signatories grants prior written approval for these activities. LUCs are described in detail in the LUC RD (ChaduxTt, 2011d), which will be revised to include additional requirements for Parcel D-1 Phase II. Modifications to the durable cover will require a revision of the *Final Post-Construction Operation and Maintenance Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* (APTIM, 2018c) to account for changes in the inspections and repairs necessary to maintain the remedy.

The activity and land use restrictions described in the LUC RD (ChaduxTt, 2011d) will be incorporated into the Quitclaim Deed and Covenant to Restrict Use of Property and will take effect upon transfer to the CCSF and issuance of those documents.

# 6.0 COMMUNITY INVOLVEMENT

The public outreach process was conducted in accordance with the *Community Involvement Plan Update, Hunters Point Naval Shipyard, San Francisco, California* (Navy, 2014) prepared for HPNS to facilitate community involvement in the decision-making process. Prior to the start of work, the RAWP (CB&I, 2016) and RAWP Addendum (APTIM, 2018b) were made available to the public at two local repositories: City of San Francisco Main Library and HPNS Library (located near the entrance to the base). Community bus tours were held during the pre-construction planning and construction phases of the project (two bus tours on June 9, 2018, and one bus tour on September 8, 2018) to apprise community members of the remediation work being performed at HPNS. The Navy also hosted a community meeting on July 11, 2018, and attended homeowner association meetings on May 7, 2018, September 6, 2018, and September 19, 2018. At each event, the attendees were invited to ask questions of the Navy to discuss and ask representatives from the regulatory agencies questions about the remediation activities at HPNS. The Navy also updated the regulatory agencies on the progress of the project, and that information was relayed to the community through a variety of agency outreach initiatives.

# 7.0 CERTIFICATION STATEMENT

I certify that this RACR memorializes completion of the construction activities to implement the RA at Parcel D-1 Phase II at the former HPNS, San Francisco, California. The RA was implemented pursuant to the ROD (Navy, 2009) and the DBR (ChaduxTt, 2011a), and in accordance with the RAWP (CB&I, 2016) and RAWP Addendum (APTIM, 2018b), with deviations noted herein. This RACR documents the achievement of the soil, groundwater, and radiologically-impacted soil and structures RAOs for Parcel D-1 Phase II achieved through proper implementation and satisfactory completion of the final remedy. The RA at Parcel D-1 Phase I was previously addressed in the Parcel D-1 Phase I RACR (APTIM, 2018a).

The Navy is currently implementing monitoring and maintenance of the Parcel D-1 Phases I and II durable cover in accordance with the *Final Post-Construction Operation and Maintenance Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* (APTIM, 2018c). The LUC objectives will be met by controlling site access until the time of property transfer. The activity and LUC described in the RD will be incorporated into the Quitclaim Deed and Covenant to Restrict Use of Property and will take effect upon transfer and issuance of those documents.

Derek Robinson
BRAC Environmental Coordinator
Hunters Point Naval Shipyard

Date

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# Figures

India Basin

San Francisco Bay

CITY AND COUNTY
OF SAN FRANCISCO

PARCEL F

PARCEL B

PARCEL UC-3

PARCEL UC-2

PARCEL UC-1

PARCEL C

PARCEL D-2

PARCEL E-2

PARCEL G

Yosemite Slough

BUILDING 810
SOIL REFERENCE AREA

PARCEL E

PARCEL D-1

Phase II

Phase I

PARCEL F

South Basin

San Francisco Bay

ASPHALT REFERENCE AREA


**Legend**

- Parcel D-1
- Parcel Boundary
- Parcel F Boundary
- Buildings

N

0 800 1,600

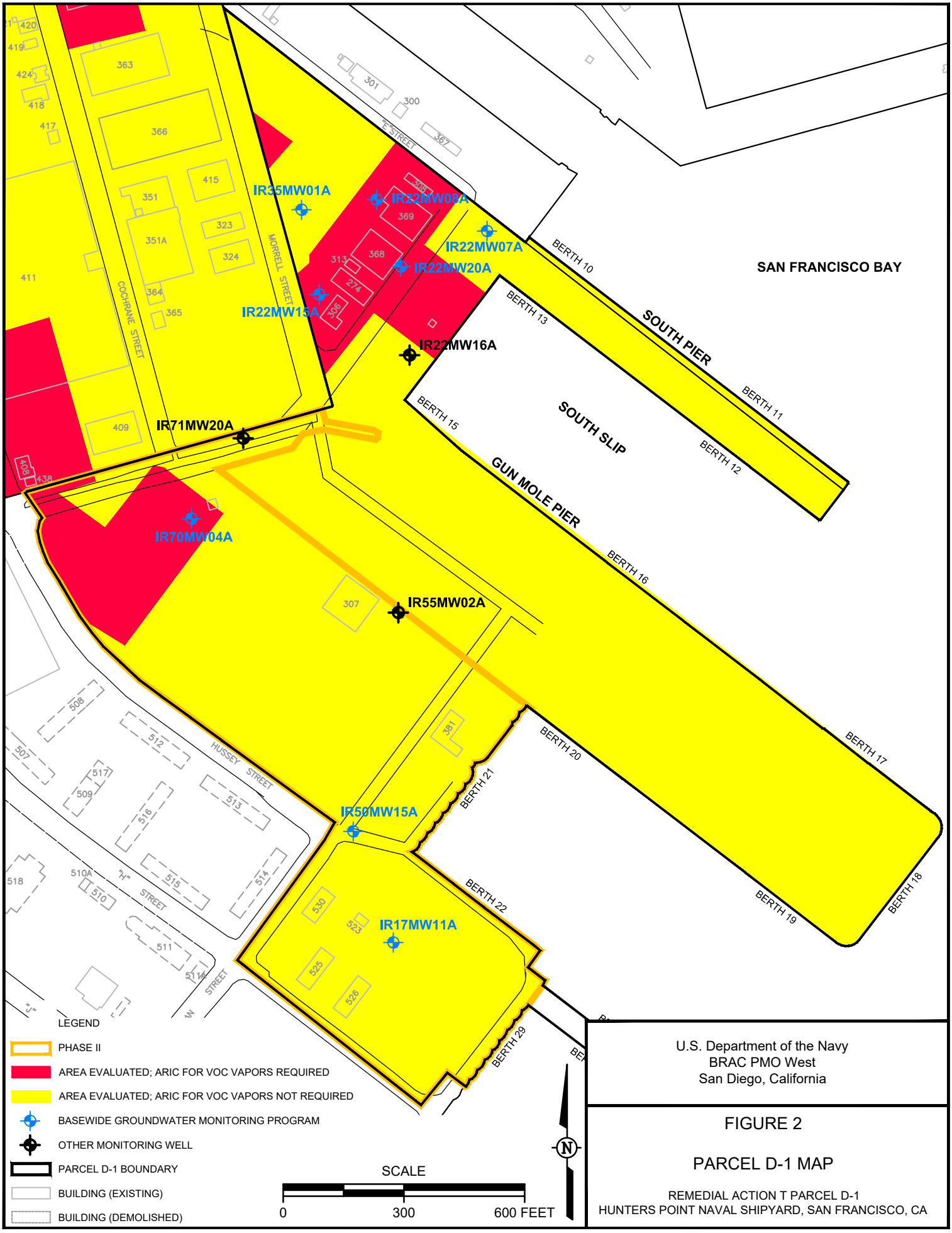
Feet

U.S. Department of the Navy
BRAC PMO West
San Diego, California

FIGURE 1
HUNTERS POINT NAVAL SHIPYARD
AND PARCEL D-1 LOCATION MAP

REMEDIAL ACTION AT PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

G:\HUNTERS_PT\GIS_Documents\Project_Maps\D1_RACR\HP_D1_001_Location.mxd 02/12/19

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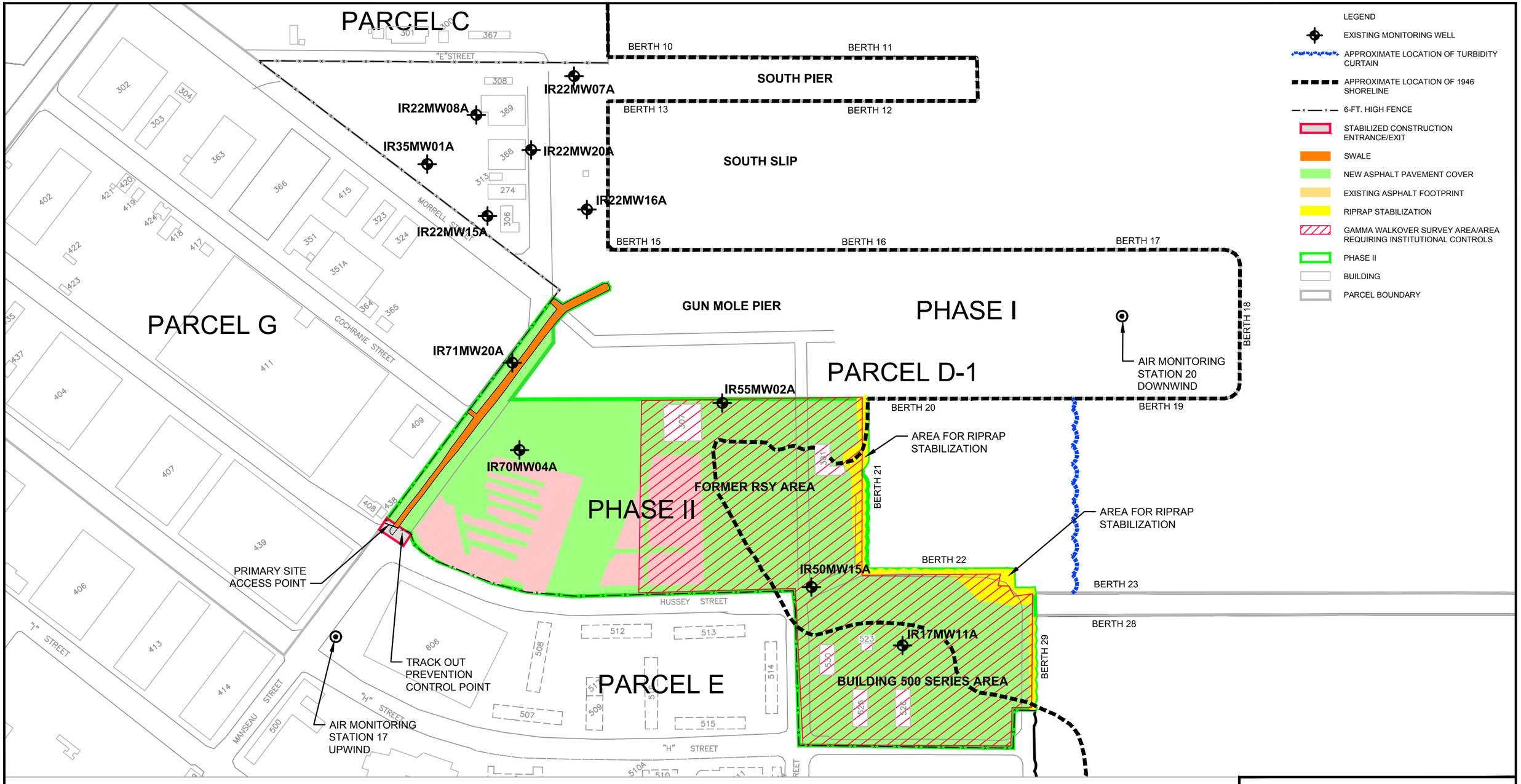
BRAC PMO West
San Diego, California

FIGURE 2

PARCEL D-1 MAP

REMEDIAL ACTION T PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

149831-A8




NOTES:

1. 1946 SHORELINE REFERENCE: GILBANE, 2018, DRAFT FINAL REMEDIAL ACTION COMPLETION REPORT, RADIOLOGICAL REMEDIATION AND SUPPORT, PARCEL D-1 PHASE II, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA.

SCALE

0 250 500 FEET

U.S. Department of the Navy
BRAC PMO West
San Diego, California

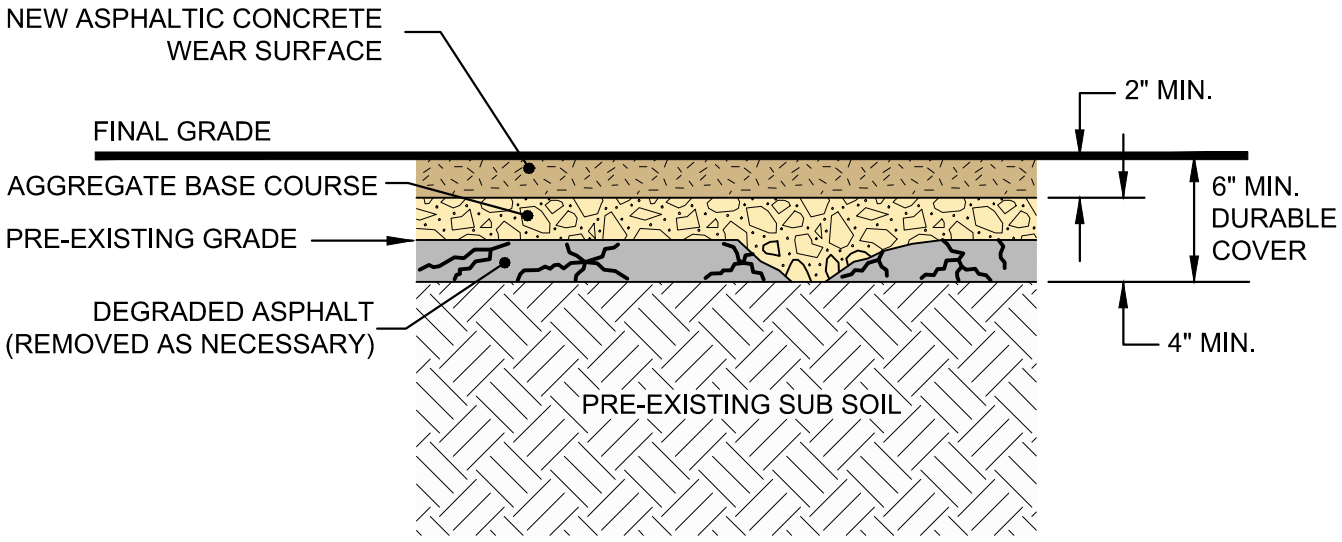
FIGURE 3

CONSTRUCTION SITE LAYOUT

REMEDIAL ACTION AT PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

149831-B2

| IMAGE | X-REF | OFFICE | DRAWN BY | | CHECKED BY | APPROVED BY | DRAWING NUMBER |
|---|---|---|---|---|---|---|---|
| --- | --- | Concord | K. BLACK | 1-30-19 | | | 149831-A6 |



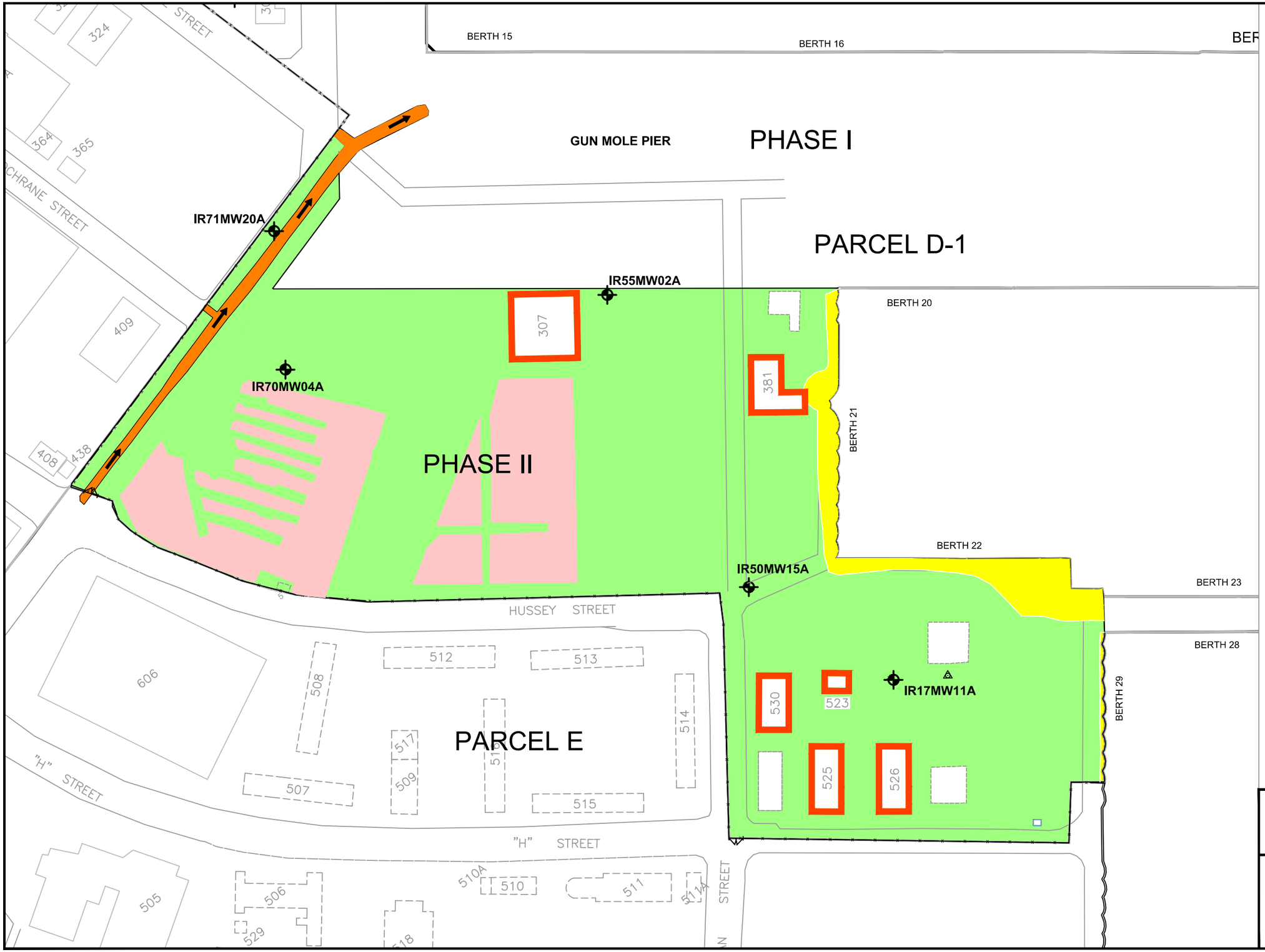

NEWLY CONSTRUCTED
ASPHALT PAVEMENT

*NOT TO SCALE*

U.S. Department of the Navy
BRAC PMO West
San Diego, California

FIGURE 4
TYPICAL CROSS SECTION
OF ASPHALT PAVEMENT COVER

PARCEL D-1 REMEDIAL ACTION
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA




LEGEND

- EXISTING MONITORING WELL
- SURVEY MONUMENT
- SURFACE WATER FLOW DIRECTION
- SWALE
- 10-FT. BUFFER AROUND ALL BUILDINGS (1% MIN. SLOPE AWAY FROM FOUNDATION)
- NEW ASPHALT PAVEMENT COVER
- EXISTING ASPHALT FOOTPRINT
- RIPRAP STABILIZATION
- BUILDING (EXISTING)
- BUILDING (FOUNDATION ONLY)
- PARCEL BOUNDARY

SCALE

0 160 320 FEET

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San Diego, California

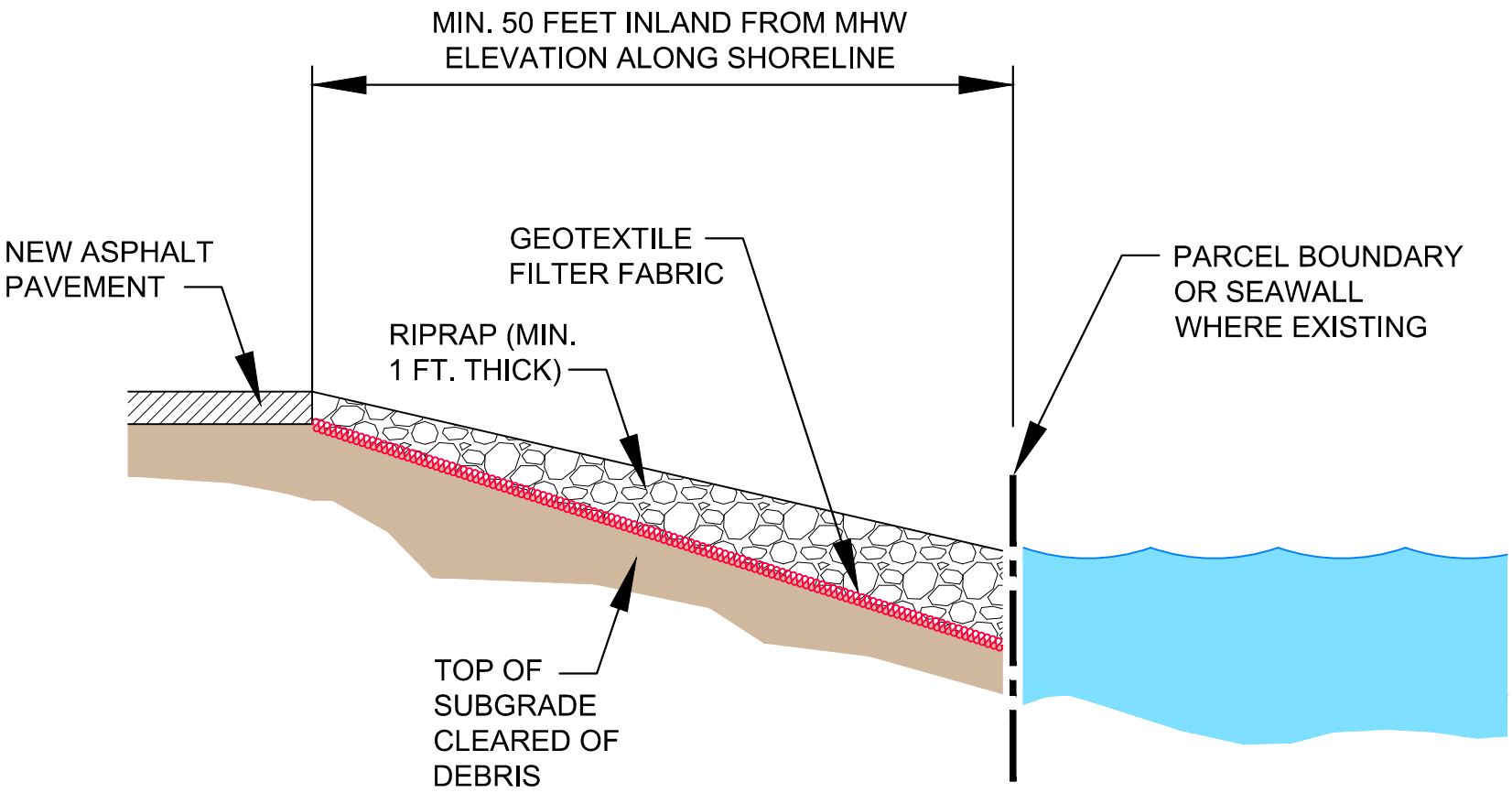
FIGURE 5

FINAL GRADE COVER

REMEDIAL ACTION AT PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

149831-B4

| IMAGE | X-REF | OFFICE | DRAWN BY | | CHECKED BY | | APPROVED BY | | DRAWING NUMBER | 149831-A7 |
|---|---|---|---|---|---|---|---|---|---|---|
| --- | --- | Concord | K. BLACK | 1-30-19 | | | | | | |




*NOT TO SCALE*

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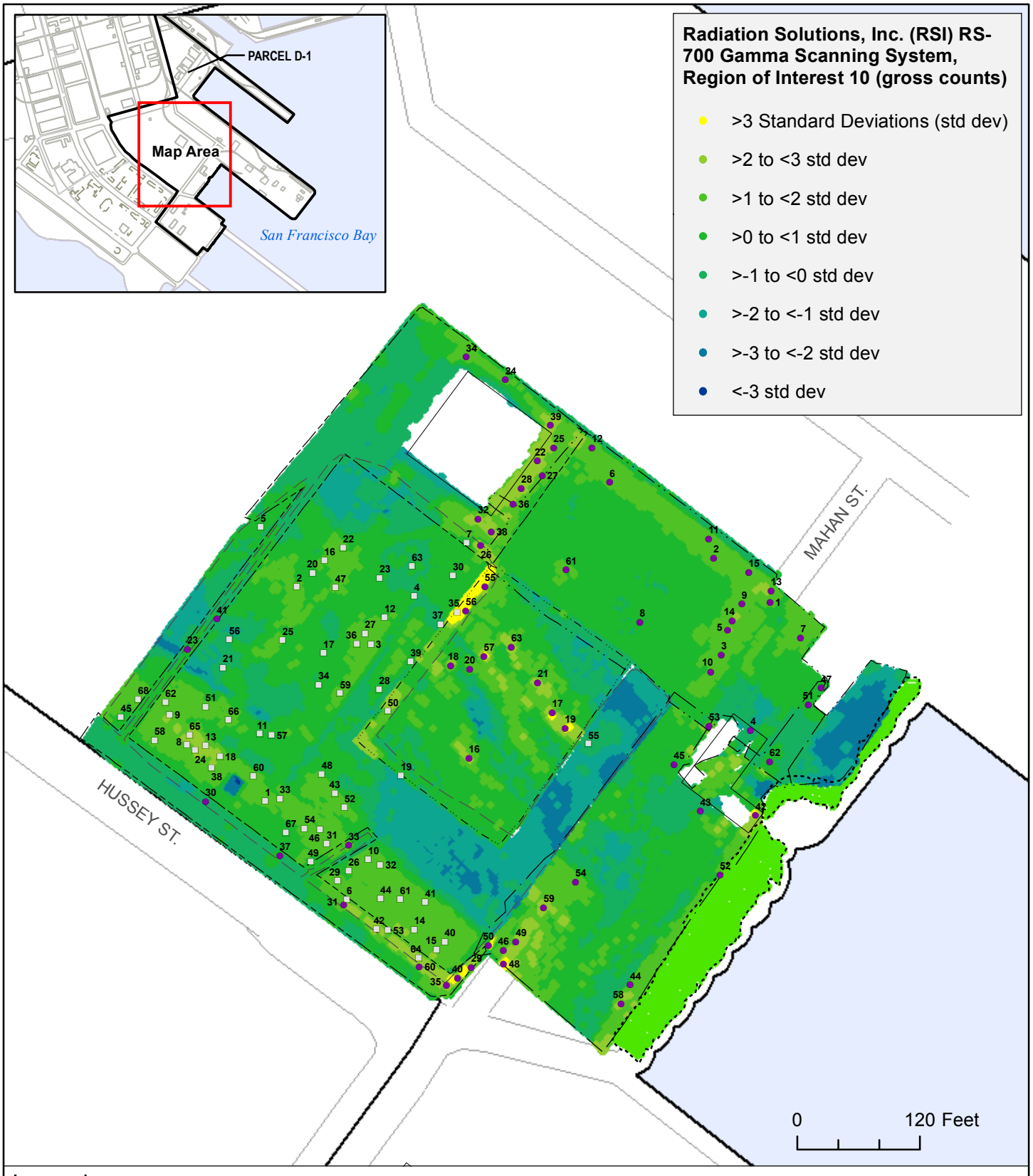
San Diego, California

FIGURE 6
TYPICAL RIPRAP STABILIZATION DETAIL

PARCEL D-1 REMEDIAL ACTION
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA




## Legend

- Buildings
- Parcel D-1

**3-inch by 3-inch Sodium Iodide Gamma Walkover Survey Count Rate**

- > Investigation Level
- < Investigation Level
- 3x3 NaI Dataset

- Soil Followup
- Asphalt Followup
- Soil Dataset 1
- Soil Dataset 2
- Soil Dataset 3
- Soil Dataset 4
- Asphalt Dataset

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FIGURE 7
GAMMA WALKOVER SURVEY
FORMER RSY AREA

REMEDIAL ACTION AT PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

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G:\HUNTERS_PT\GIS_Documents\Project_Maps\D1_CTO3\HP_D1_037_Bldg_500_Series_Area.mxd Karen.Black 02/11/19

## Legend

- Buildings
- Parcel D-1

**3-inch by 3-inch Sodium Iodide Gamma Walkover Survey Count Rate**

- > Investigation Level
- < Investigation Level
- 3x3 Nal Dataset
- Soil Followup
- Soil Dataset 1
- Soil Dataset 2
- Soil Dataset 3
- Soil Dataset 4

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FIGURE 8
GAMMA WALKOVER SURVEY
BUILDING 500 SERIES AREA

REMEDIAL ACTION AT PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

# Tables

## Table 1
## Project Schedule

| Task | Start Date | End Date |
|---|---|---|
| Final Work Plan Addendum Submitted | July 16, 2018 | July 16, 2018 |
| Mobilization | August 13, 2018 | August 15, 2018 |
| Air Monitoring | August 16, 2018 | November 7, 2018 |
| Utility Clearance | August 13, 2018 | August 13, 2018 |
| Site Preparation/Clearing and Grubbing | August 14, 2018 | August 17, 2018 |
| Pre-construction Topographical Survey | August 20, 2018 | August 21, 2018 |
| Subgrade Preparation | August 20, 2018 | October 19, 2018 |
| Gamma Walkover Survey (including Data Review and Follow-up Statics) | September 7, 2018 | October 9, 2018 |
| Inspection and Repair of Existing Building Foundations | August 17, 2018 | December 7, 2018 |
| Asbestos Removal from Buildings | November 29, 2018 | November 29, 2018 |
| Turbidity Curtain | August 13, 2018 | October 19, 2018 |
| Seawall Stabilization (Armoring) | September 10, 2018 | October 19, 2018 |
| Drainage Swale Stabilization | September 28, 2018 | November 13, 2018 |
| Asphalt Paving | November 5, 2018 | November 13, 2018 |
| Asphalt Repair | February 22, 2019 | February 28, 2019 |
| Extension of Existing Wells | November 19, 2018 | November 20, 2018 |
| Installation of Permanent Fence and Signs | November 20, 2018 | January 9, 2019 |
| Final Topographical Survey | December 20, 2018 | December 21, 2018 |
| Demobilization | *Pending* | *Pending* |

## Table 2
## Gamma Walkover Survey Descriptive Statistics

| GWS Area Description | Instrument | 3×3 NaI Soil Scan IL | Scan Count Rate Range [a] | RSI ROI 10 Mean | RSI ROI 10 Standard Deviation | Number of Follow-Ups | Number of Follow-Ups Exceeding Background |
|---|---|---|---|---|---|---|---|
| Former RSY Area Erosion Area | 3×3 NaI Instrument # 117634 | 21,613 CPM | 4,807 – 16,533 CPM | N/A | N/A | 0 | N/A |
| Former RSY Area Asphalt | RSI RS-700 | N/A | 2,189 – 4,726 CPS | 3,571 CPS | 485 CPS | 68 | 0 |
| Former RSY Area Soil Dataset 1 | RSI RS-700 | N/A | 1,937 – 3,843 CPS | 2,766 CPS | 237 CPS | 63 | 0 |
| Former RSY Area Soil Dataset 2 | RSI RS-700 | N/A | 1,137 – 4,380 CPS | 2,974 CPS | 628 CPS | | |
| Former RSY Area Soil Dataset 3 | RSI RS-700 | N/A | 2,343 – 3,947 CPS | 3,054 CPS | 216 CPS | | |
| Former RSY Area Soil Dataset 4 | RSI RS-700 | N/A | 1,585 – 4,710 CPS | 2,923 CPS | 566 CPS | | |
| Building 500 Series Area Erosion Area | 3×3 NaI Instrument # 117634 | 21,613 CPM | 7,263 – 19,457 CPM | N/A | N/A | 0 | N/A |
| Building 500 Series Area Soil Dataset 1 | RSI RS-700 | N/A | 2,155 – 4,494 CPS | 2,889 CPS | 251 CPS | 111 | 0 |
| Building 500 Series Area Soil Dataset 2 | RSI RS-700 | N/A | 2,100 – 4,635 CPS | 2,791 CPS | 334 CPS | | |
| Building 500 Series Area Soil Dataset 3 | RSI RS-700 | N/A | 1,954 – 3,624 CPS | 2,692 CPS | 244 CPS | | |
| Building 500 Series Area Soil Dataset 4 | RSI RS-700 | N/A | 1,485 – 4,705 CPS | 2,922 CPS | 313 CPS | | |

## Table 2 (continued)
## Gamma Walkover Survey Descriptive Statistics

*Notes:*

*[a] The count rate range reported for RSI data is from ROI 10, which is the gross counts. ROI 10 is used to represent the RSI GWS dataset in this table and on Figures 7 and 8. Refer to Appendix L for data collected from ROIs.*

| | |
|---|---|
| *3×3 NaI* | *3-inch-by 3-inch sodium iodide* |
| *CPM* | *counts per minute* |
| *CPS* | *counts per second* |
| *GWS* | *gamma walkover survey* |
| *IL* | *investigation level* |
| *N/A* | *not applicable* |
| *ROI* | *region of interest* |
| *RSI* | *Radiation Solutions, Inc., RS-700* |
| *RSY* | *radiological screening yard* |

## Table 3
## Monitoring Well Coordinates

| Well ID | Northing | Easting | Top of Casing Elevation (feet above msl) |
|---|---|---|---|
| IR71MW20A | 450,272.37 | 1,460,868.07 | 7.32 |
| IR70MW04A | 450,072.66 | 1,460,740.01 | 7.58 |
| IR55MW02A | 449,839.22 | 1,461,253.92 | 7.20 |
| IR50MW15A | 449,296.00 | 1,461,141.98 | 7.00 |
| IR17MW11A | 449,019.98 | 1,461,241.46 | 7.77 |

*Notes:*

*Horizontal coordinates are based on the North American Datum of 1927 (NAD 27) Zone-III (Hunters Point West 1 PID HT0613).*

*Vertical elevations are based on the National Geodetic Vertical Datum of 1929 (NGVD 29).*

*msl* *mean sea level*

## Table 4
## Summary of Waste Materials from Parcel D-1 Phase II

| Waste Type | Waste Profile Number | Dates of Transportation | Disposal Weight/Volume | Waste Class | Disposal Facility |
|---|---|---|---|---|---|
| Construction Debris | N/A | August 16 – October 22, 2018 | 204 tons | Non-hazardous (Disposed) | Zanker Materials Processing Facility<br>675 Los Esteros Road<br>San Jose, CA 95134<br><br>Bay Area Scavenger & Recycling<br>11740 Berryessa Road<br>San Jose, CA 95133<br><br>Hayward Transfer Station, LLC<br>3458 Enterprise Avenue<br>Hayward, CA 94545 |
| Scrap Metal | N/A | August 29 – September 14, 2018 | 17 tons | Non-hazardous (Recycled) | Sims Metal Management Recycling Center<br>600 South 4th Street<br>Richmond, CA 94804 |
| Weathered Wood (creosote) | PHLF-18-793 | October 22, 2018 | 40 cy | Non-hazardous Special Waste | Potrero Hills Landfill<br>3675 Potrero Hills Lane<br>Suisun, CA 94585 |
| Ceramic Electrical Insulators | N/A | N/A | 0.5 cy | N/A | Transferred to Navy's radiological basewide radiological contractor for subsequent disposal by the Navy's low-level radioactive waste contractor |
| Asbestos Containing Material | 637236CA | December 11, 2018 | 2 cy | Hazardous waste (asbestos) | Recology–Hay Road Landfill<br>6426 Hay Road<br>Vacaville, CA 95687 |
| | N/A | December 11, 2018 | 6 cy | Non-hazardous waste (non-friable asbestos) | |
| Lead Paint Chips | 32504 | December 11, 2018 | Two drums | Hazardous waste, solid (lead) | Crosby & Overton<br>1630 W 17th Street<br>Long Beach, CA 90813 |

## Table 4 (continued)
## Summary of Waste Materials from Parcel D-1 Phase II

| Waste Type | Waste Profile Number | Dates of Transportation | Disposal Weight/Volume | Waste Class | Disposal Facility |
|---|---|---|---|---|---|
| Soil | *Pending* | *Pending* | Two over pack drums, 15 cy in roll off bin | *Pending* | Pending off-site disposal |
| Lighting Ballasts | *Pending* | *Pending* | One over pack drum | *Pending* | Pending off-site disposal |

*Notes:*

| | |
|---|---|
| *cy* | *cubic yard* |
| *N/A* | *not applicable* |
| *Navy* | *U.S. Department of the Navy* |

## Table 5
## Demonstration of Completion of Remedial Action Objectives for Parcel D-1 Phase II

| No. | RAO | Demonstration of Completion | RAO Met (Yes/No) |
|---|---|---|---|
| **Soil** | | | |
| 1. | Prevent exposure to PAHs and metals in soil at concentrations above RGs developed in the human health risk assessment for the following exposure pathways:<br>• Ingestion of, outdoor inhalation of, and dermal exposure to surface and subsurface soil by industrial workers or construction workers | The Navy excavated hot spot locations where PAHs exceeded RGs. Approximately 200 cubic yards of soil were removed from Parcel D-1 and disposed off site (ERRG, 2011; ERRG, 2014).<br>The Navy installed a durable cover in Parcel D-1 Phase II to prevent or minimize exposure to COCs in soil by ingestion, outdoor inhalation, and dermal exposure at concentrations exceeding RGs. The durable cover provides a physical barrier to prevent or minimize exposure of humans to COCs above RGs. The durable cover constructed in Parcel D-1 Phase II included seawall stabilization, an asphaltic pavement cover, and repaired building foundations. The specific cover that was installed in Parcel D-1 was designed to be durable and stable to reliably prevent or minimize future exposure to COCs in soil for extended periods of time with minimal maintenance.<br>Routine O&M will be performed to prevent or minimize future exposure of humans to COCs in soil by ingestion, outdoor inhalation, and dermal exposure at concentrations exceeding RGs. The O&M program will ensure that the durable cover remedy is performing as intended. | Yes |
| 2. | Prevent exposure to VOCs in soil gas at concentrations that would pose unacceptable risk via indoor inhalation of vapors. RGs for VOCs to address exposure via indoor inhalation of vapors have been superseded based on COC identification information from soil gas surveys. Action levels were established for soil gas, which account for vapors from both soil and groundwater, and were calculated based on a cumulative risk level of $10^{-6}$ using the accepted methodology for risk assessments at Hunters Point Naval Shipyard. | ICs are in place and being enforced to prevent exposure to high concentrations of VOCs in soil gas. Proposed construction of enclosed structures must be approved in accordance with the "Covenant(s) to Restrict Use of the Property," Quitclaim Deed(s); LUC RD (ChaduxTt, 2011); and the risk management plan with approval of the Federal Facilities Agreement signatories. Approval is required prior to conducting such activity within the ARIC for VOC vapors to ensure that the risk of potential exposure to VOC vapors are reduced to acceptable levels that are adequately protective of human health. The Navy performed a soil gas survey in September 2010 for areas within Parcels B, D-1, G, and UC-2 (Sealaska Environmental Services, 2013). A total of 30 grid blocks were sampled at Parcel D-1. Soil gas results, collected from eight blocks, indicated a potential risk to a future residential receptor that exceeded $10^{-6}$. Consequently, the ARIC for VOC vapors was recommended to be reduced from all of Parcel D-1 to the eight blocks where the potential risk exceeded $10^{-6}$. The LUC objectives are met by controlling site access until the time of property transfer. | Yes |

## Table 5 (continued)
## Demonstration of Completion of Remedial Action Objectives for Parcel D-1 Phase II

| No. | RAO | Demonstration of Completion | RAO Met (Yes/No) |
|---|---|---|---|
| **Groundwater** | | | |
| 1. | Prevent exposure by industrial workers to VOCs in the A-aquifer groundwater at concentrations above RGs via indoor inhalation of vapors from groundwater. | VOCs in groundwater were treated as part of a treatability study conducted in 2008 (Alliance Compliance Group, 2010). VOCs in groundwater were treated to below the RGs specified in the ROD (Navy, 2009). | Yes |
| 2. | Prevent or minimize exposure of construction workers to metals and VOCs in the A-aquifer groundwater at concentrations above RGs from dermal exposure and inhalation of vapors from groundwater. | VOCs in groundwater were treated as part of a treatability study conducted in 2008 (Alliance Compliance Group, 2010). VOCs in groundwater were treated to below the RGs specified in the ROD (Navy, 2009).<br>The Navy will rely on ICs in the form of environmental restrictive covenants, as provided in LUC RD (ChaduxTt, 2011), at the time of property conveyance, to prevent exposure of humans to groundwater with COC concentrations exceeding RGs through the domestic use pathway.<br>Specifically, IC performance objectives prohibit the use of groundwater and restrict land disturbing activities that may cause or facilitate movement of known contaminated groundwater. | Yes |
| **Radiologically Impacted Soil and Structures RAOs** | | | |
| 1. | Prevent exposure to radionuclides of concern in concentrations that exceed RGs for potentially complete exposure pathways. | The Navy identified and removed historical subsurface storm drain and sanitary sewer utilities beneath Parcel D-1 and remediated buildings in Parcel D-1 Phase II as part of the time-critical removal action for radionuclides (Gilbane, 2019). | Yes |

*Notes:*

| | |
|---|---|
| *ARIC* | *area requiring institutional control* |
| *ChaduxTt* | *ChaduxTt, A Joint Venture of St. George Chadux Corp and Tetra Tech EM Inc.,* |
| *COC* | *chemical of concern* |
| *IC* | *institutional control* |
| *LUC* | *land use control* |
| *LUC RD* | *Land Use Control Remedial Design, Parcel D 1, Hunters Point Naval Shipyard, San Francisco, California* |
| *Navy* | *U.S. Department of the Navy* |
| *O&M* | *operation and maintenance* |
| *PAH* | *polycyclic aromatic hydrocarbon* |
| *RAO* | *remedial action objective* |
| *RG* | *remediation goal* |
| *ROD* | *Final Record of Decision for Parcels D-1 and UC-1, Hunters Point Shipyard, San Francisco, California* |
| *VOC* | *volatile organic compound* |

## Table 5 (continued)
## Demonstration of Completion of Remedial Action Objectives for Parcel D-1 Phase II

*References:*

*Alliance Compliance Group, 2010, Final Parcels D-1 and G Groundwater Treatability Study Technical Report, IR-09, IR-33, and IR-71, Hunters Point Shipyard, San Francisco, California, March.*

*ChaduxTt, A Joint Venture of St. George Chadux Corp and Tetra Tech EM Inc., 2011, Land Use Control Remedial Design, Parcel D-1, Hunters Point Shipyard, San Francisco, California.*

*ERRG, 2011, Final Remedial Action Completion Report for Soil Hot Spot Locations at Parcels B, D 1, and G and Soil Stockpiles at Parcels D 1 and G, October.*

*ERRG, 2014, Final Addendum 1 to the Remedial Action Completion Report for Soil Hot Spot Locations at Parcels B, D 1, and G and Soil Stockpiles at Parcels D 1 and G, April.*

*Gilbane, 2019, Removal Action Completion Report, Radiological Remediation and Support, Parcel D-1, Phase II, Hunters Point Naval Shipyard, San Francisco, California.*

*Sealaska Environmental Services, 2013, Final Technical Memorandum, Soil Vapor Investigation in Support of Vapor Intrusion Assessment, Parcels B, D-1, G, and UC-2, Hunters Point Naval Shipyard, San Francisco, California, March.*

*U.S. Department of the Navy, 2009, Final Record of Decision for Parcels D-1 and UC-1, Hunters Point Shipyard, San Francisco, California, July 24.*

# Appendix A
# Responses to Agency Comments on the Draft Remedial Action Completion Report

(reserved for future use)

# Appendix B
# Submittals
(provided on electronic copy only)

**SUBMITTAL LOG**

**REMEDIAL ACTION IN PARCEL D-1**
**N62473-17-D-0006, CTO N6247317F4550**

| Submittal # | Submittal/ FCR | Description | Date Submitted to Navy | Navy Approval Required | Date Approved by Navy | Notes |
|---|---|---|---|---|---|---|
| 1 | Submittal #001 | Cementitious Patching Mortar | 10/2/2018 | No | N/A | For Navy review only; approval not required. |
| 2 | FCR-001 | Asphalt Density Testing | 10/29/2018 | Yes | 10/30/2018 | |
| 3 | Submittal #003 | Bituminous Mix Design | 11/7/2018 | Yes | 11/8/2018 | |
| 4 | FCR-002 | Fence Post Depths | 11/28/2018 | Yes | 11/29/2018 | |

Notes:
FCR - field change request
N/A - not applicable

# SUBMITTAL TRANSMITTAL

| ACTIVITY ID | DATE |
|---|---|
| | Sep 28, 2018 |

| CONTRACT NO | CONTRACT TITLE | SUBMI NO |
|---|---|---|
| N62473-17-D-0006, CTO# 4550 | Radiological Work Tasks, Remedial Action and Maintenance of Remedies | 001 |

| SUBM ITEM DESCRIPTION | | | |
|---|---|---|---|
| SD-08 Manufacturer's Instructions | SUBMITTAL PRIORITY? | ( ) HIGH | (•) NORMAL |
| | PREPARED BY CQC MGR? | (•) YES | ( ) NO |
| | SCHEDULE REFERENCED? | ( ) YES | (•) NO |
| | CRITICAL PATH? | ( ) YES | (•) NO |

| SPEC SECTION | SPEC PARAGRAPH | SPEC PAGE NO |
|---|---|---|
| 03 30 00 Cementitious Patching Mortar | Paragraph 1.3.3 | 03 30 00-2 |

APTIM is submitting the manufacturer's instructions for Cementitious Patching Mortar, this material will be used to seal cracks in the concrete foundations up to 1/2 inch

Lee Laws Digitally signed by Lee Laws Date: 2018.10.02 09:58:56 -07'00' 10/2/2018

CONTRACTOR/QUALITY CONTROL MANAGER DATE

COMMENTS FOR DETAILED REVIEWER:

DETAILED REVIEWER 1 COMMENTS:

| DETAILED REVIEWER 1 NAME/SIGNATURE | TITLE | RESPONSE DATE |
|---|---|---|
| | | |

DETAILED REVIEWER 2 COMMENTS:

| DETAILED REVIEWER 2 NAME/SIGNATURE | TITLE | RESPONSE DATE |
|---|---|---|
| | | |

APPROVER'S COMMENTS:

SUBM STATUS

GOVERNMENT CONSTRUCTION MANAGER DATE

CEMENT & CONCRETE PRODUCTS™

# A11: Water Based Products

**SAFETY DATA SHEET**
**(Complies with OSHA 29 CFR 1910.1200)**

## SECTION I: PRODUCT IDENTIFICATION

The QUIKRETE® Companies
One Securities Centre
3490 Piedmont Road, Suite 1300
Atlanta, GA 30305

Emergency Telephone Number
(770) 216-9580
Information Telephone Number
(770) 216-9580

MSDS A11
Revision: Sep-15

| QUIKRETE® Product Name | Code # |
|---|---|
| CONCRETE CRACK SEAL | 8640-00 |
| BLACKTOP CRACK SEAL | 8640-05 |

**Product Use:** Acrylic cosmetic sealant for horizontal repairs to concrete or asphalt.

## SECTION II - HAZARD IDENTIFICATION

**Hazard-determining components of labeling:** Acrylic polymer
**2.1 Classification of the substance or mixture**
Skin Irritant – Category 2
Eye Irritant – Category 2B
Acute Oral Toxicity – Category 4
Specific Target Organ Toxicity – Single Exposure – Category 3

**2.2a Signal word** Warning

**2.2b Hazard Statements**
Causes skin and eye irritation
Harmful if swallowed
May cause respiratory irritation

**2.2c Pictograms**

**2.2d Precautionary statements**

Do not handle until all safety precautions have been read and understood.
Wear impervious gloves, such as nitrile. Wear eye protection, and protective clothing.
Do not eat, drink or smoke when using this product.
Wash thoroughly after handling.
Use only in a well-ventilated area.
Do not breathe vapors.

If swallowed: Rinse mouth. Do NOT induce vomiting.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If on skin (or hair): Remove immediately all contaminated clothing and wash before re-use. Rinse skin or hair with water.
If significant skin irritation or rash occurs: get medical advice or attention.

**Immediately seek medical advice or attention if symptoms are significant or persist.**

Dispose of contents/containers in accordance with all regulations.

**2.3 Additional Information**

**2.3a HNOC – Hazards not otherwise classified:** Not applicable

**2.3b Unknown Acute Toxicity**: None

**2.3C WHMIS Classification**

Class D2B – Skin/Eye Irritant

**2.3d Label Elements According To WHMIS**
**Hazard Symbols**

**Signal Word**

Warning

## SECTION III - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

| Hazardous Components | CAS No. | % by Weight |
|---|---|---|
| Calcium Carbonate | 1317-65-3 | 40-60 |
| Acrylic Polymeric Resin | Not Hazardous | 40-60 |
| Water | 7732-18-5 | 10-30 |
| Titanium Dioxide | 13463-67-7 | 1-2 |
| Ethylene Glycol | 107-21-1 | 1-2 |

Composition ranges provided due to batch-to-batch variability.
None of the constituents of this product are of unknown toxicity.

## SECTION IV – FIRST AID MEASURES

**4.1 Description of the first-aid measures**
**General information:**
**After inhalation:** Remove person to fresh air and keep comfortable for breathing.
**After skin contact:** Remove immediately all contaminated clothing and wash before re-use. Rinse skin or hair with water.
**After eye contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
**After swallowing:** Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.

**4.2 Most important symptoms/effects, acute and delayed**
**Inhalation:** May cause respiratory tract irritation.

**Skin contact:** Causes skin irritation.

**Eye Contact:** Causes eye irritation.

**Ingestion:** May be harmful if swallowed.

**4.3 Indication of immediate medical attention and special treatment needed**:
Immediately seek medical advice or attention if symptoms are significant or persist.

## SECTION V - FIRE FIGHTING MEASURES

**5.1 Flammability of the Product:** This is a water-based product and presents no particular fire or explosion hazard. Dry polymer film will burn. Product contains low levels of organic volatiles which may be emitted at elevated temperatures
**5.2 Suitable extinguishing agents:** Treat for surrounding material
**5.3 Special hazards arising from the substance or mixture:** None
**5.3a Products of Combustion:**. Carbon monoxide, carbon dioxide and unknown hydrocarbons.
**5.3b Explosion Hazards in Presence of Various Substances:** Non-explosive in presence of shocks

## SECTION VI – ACCIDENTAL RELEASE MEASURES

**6.1 Personal precautions, protective equipment and emergency procedures:** Wear personal protective equipment (See section VIII). Keep unprotected persons away.

**6.2 Methods and material for containment and cleaning up:**
Do not allow to enter sewers/ surface or ground water. Dispose of unwanted materials and containers properly in accordance with all regulations.

## SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND STORAGE

**7.1 Handling**
**Precautions for safe handling:** Ensure good ventilation/exhaustion at the workplace. Wear appropriate PPE (See section 8).Do not mix with other chemical products, except as indicated by the manufacturer. Do not get in eyes, on skin or clothing.

**7.2 Storage**
**Requirements to be met by storerooms and receptacles:** No special requirements.
**Information about storage in one common storage facility:** Not required.
**Further information about storage conditions:** Keep out of the reach of children

## SECTION VIII – EXPOSURE CONTROL MEASURES / PERSONAL PROTECTION

**8.1 Components with limit values that require monitoring at the workplace:**

| Hazardous Components | CAS No. | PEL (OSHA) mg/M$^3$ | TLV (ACGIH) mg/M$^3$ |
|---|---|---|---|
| None | | | |

**8.2 Exposure Controls**
Use ventilation adequate to keep exposures below recommended exposure limits.

**8.3 General protective and hygienic measures**

Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Avoid contact with the eyes and skin.

**8.3a Personal protective equipment**

**Protection of hands**:
Wear gloves of adequate length to offer appropriate skin protection from splashes. Nitrile, Butyl and PVC gloves have been found to offer adequate protection for incidental contact.

**Eye protection:**
Wear approved eye protection (properly fitted dust- or splash-proof chemical safety glasses.

**Respiratory protection:**
Respiratory protection is not required under intended use.

## SECTION IX - PHYSICAL/CHEMICAL CHARACTERISTICS

**General Information**

| | |
|---|---|
| **Appearance** | Form: Liquid<br>Color: Various colors<br>Odor: slight odor |
| **pH-value at 20°C (68 °F):** | 8-9 |
| **Boiling point/Boiling range:** | >212$^{o}$F |
| **Flash point:** | >200$^{o}$F (TCC) |
| **Auto igniting:** | Product is not self-igniting. |
| **Vapor pressure at 21°C (70°F)** | Not available |
| **Density at 25°C (77 °F):** | Acrylic Concrete Coating: 1.40<br>Masonry Waterproofing Coating: 1.53 |
| **Solubility in / Miscibility with Water:** | Miscible |
| **VOC content:** | 16 g/L, 1.1% by weight |

## SECTION X – STABILITY AND REACTIVITY

**10.1 Reactivity**
No dangerous reaction known under conditions of normal use.
**10.2 Chemical stability**
Stable under normal storage conditions.
**10.3 Possibility of hazardous reaction**
No dangerous reaction known under conditions of normal use.

**10.4 Thermal decomposition / conditions to be avoided**
No decomposition if used according to specifications.
**10.5 Incompatible materials**
Strong oxidizers, materials that react with water
**10.6 Hazardous Decomposition or By-products**
None known

## SECTION XI – TOXICOLOGICAL INFORMATION

**11.1 Exposure Routes:** Skin contact, skin adsorption, eye contact, inhalation, or ingestion.

**11.2 Symptoms related to physical/chemical/toxicological characteristics:**
**Inhalation:** May cause respiratory tract irritation.
**Skin contact:** Causes skin irritation.
**Eye Contact:** Causes eye irritation.
**Ingestion:** Harmful if swallowed.

**11.3 Delayed, immediate and chronic effects of short-term and long-term exposure**
**Short Term**
Skin Corrosion/Irritation: Causes skin irritation
Serious Eye Damage/Irritation: Causes eye irritation
Respiratory Sensitization: Not available
Skin Sensitization: Not available
Specific Target Organ Toxicity-Single Exposure: (Category 3) May cause respiratory irritation.
Aspiration Hazard: Not available
**Long Term**
Carcinogenicity: Not available
Germ Cell Mutagenicity: Not available
Reproductive Toxicity: Not available
Specific Target Organ Toxicity- Repeated Exposure: Not available
Synergistic/Antagonistic Effects: Not available.

## SECTION XII – ECOLOGICAL INFORMATION

**12.1 Ecotoxicity**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Must not reach bodies of water or drainage ditch undiluted or un-neutralized

**12.2 Persistence and degradability**

No further relevant information available.

**12.3 Bioaccumulative potential:**
No further relevant information available.

**12.4 Mobility in soil**
No further relevant information available.

**12.5 Other Adverse Effects**
No further relevant information available.

## SECTION XIII – DISPOSAL CONSIDERATIONS

**13.1 Waste Disposal Method**
The packaging and material may be land filled. This product is not classified as a hazardous waste under the authority of the RCRA (40CFR 261) or CERCLA (40CFR 117&302). Disposal must be made in accordance with local, state and federal regulations.

**13.2 Other disposal considerations**
**Uncleaned packaging**
**Recommendation:** Disposal must be made in accordance with local, state and federal regulations.
**Recommended cleansing agent:** Water, if necessary with cleansing agents.

## SECTION XIV – TRANSPORT INFORMATION

| | DOT (U.S.) | TDG (Canada) |
|---|---|---|
| **UN-Number** | Not Regulated | Not Regulated |
| **UN proper shipping name** | Not Regulated | Not Regulated |
| **Transport Hazard Class(es)** | Not Regulated | Not Regulated |
| **Packing Group (if applicable)** | Not Regulated | Not Regulated |

**14.1 Environmental hazards:**
Not Available

**14.2 Transport in bulk according to Annex II of Marpol 73/78 and the IBC Code**
Not available

**14.3 Special precautions for user**
Do not handle until all safety precautions have been read and understood.

## SECTION XV – OTHER REGULATORY INFORMATION

## 15.1 Safety, Health and Environmental Regulations/Legislations specific for the chemical

**Canada**

**WHMIS Classification:** Considered to be a D2B hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations and subject to the requirements of Health Canada's Workplace Hazardous Material Information (WHMIS). This document complies with the WHMIS requirements of the Hazardous Products Act (HPA) and the CPR.

## 15.2 US Federal Information

**SARA 302/311/312/313 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302, 311, 312 or 313.

**RCRA:** Not classified as a hazardous waste under the Resource Conservation and Recovery Act, or its regulations, 40 CFR §261 et seq.

**CERCLA:** Not classified as a hazardous substance under regulations of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 40 CFR §302.

**Emergency Planning and Community Right to Know Act (SARA Title III):** Not an extremely hazardous substance under Section 302 and is not a toxic chemical subject to the requirements of Section 313.

**NTP:** Not classified

**OSHA Carcinogen:** Not listed.

## 15.3 State Right to Know Laws

**California Prop. 65 Components**

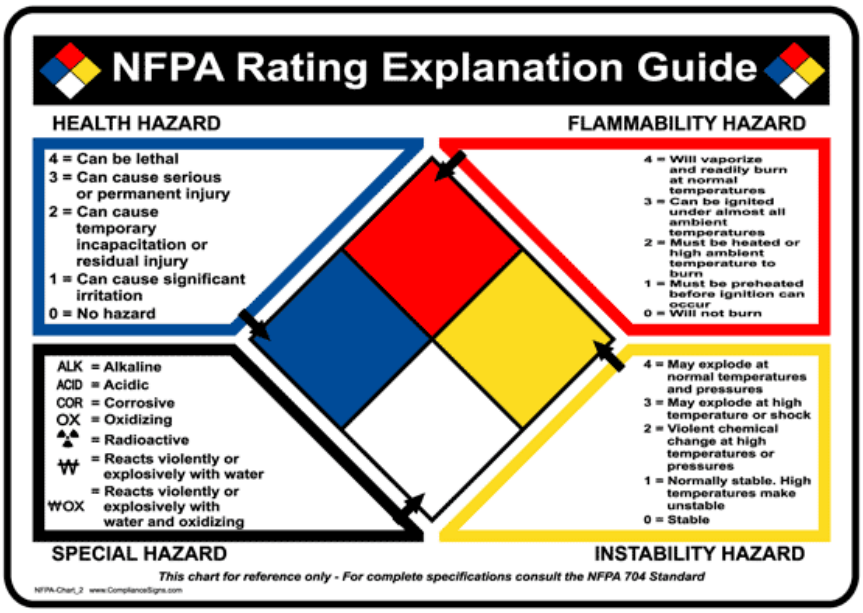
**WARNING:** This product does not contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

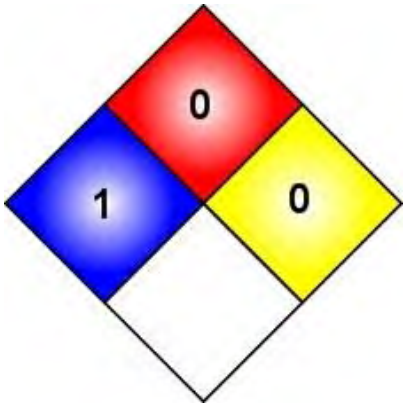
## 15.4 Global Inventories

**DSL** All components of this product are on the Canadian DSL list.

**TSCA No.:** All constituents are listed in the TSCA inventory.

## 15.5 NFPA Ratings




## SECTION XVI – OTHER INFORMATION

**Last Updated: September 24, 2015**

**NOTE:** The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to silica contained in our products.

Prepared by

The QUIKRETE® Companies
Phone (800) 282-5828
www.QUIKRETE.com

**End of SDS**

CEMENT & CONCRETE PRODUCTS™

# CONCRETE CRACK SEAL

PRODUCT NOS. 8640-10, -15

DIVISION **3**

Concrete Materials & Methods 03 05 00

## PRODUCT DESCRIPTION

QUIKRETE® Concrete Crack Seal is uniformly blended latex emulsion which is formulated to fill cracks in horizontal concrete surfaces.

## PRODUCT USE

QUIKRETE® Concrete Crack Seal is formulated to fill cracks on any horizontal concrete surface, including sidewalks, walkways, steps, patios, decks, appliance platforms, etc. There is nothing to add. Just shake the ready-to-use product and pour directly from the container. The product blends in with the natural gray color of concrete.

## SIZES

• QUIKRETE® Concrete Crack Seal is available in 5.5 ounce (163 ml) squeeze tubes, one quart (946 ml) and one gallon (3.8 L) plastic bottles.

## YIELD

• One quart (946 ml) bottle will fill a ¼" x ½" (6 x 12 mm) crack 38' (11.6 M) long

## INSTALLATION

### SURFACE PREPARATION

Shake well before using. Clean all loose dirt, dust and gravel from the crack. Surfaces to receive Concrete Crack Seal should be free of oil and grease. Cleaning with QUIKRETE® Concrete & Asphalt Cleaner (#8601) is recommended to insure the best bond. If the crack is deeper than ¼" (6 mm), use backer rod or sand to fill the crack to within ¼" (6 mm) of the surface.

### APPLICATION

Cut the tip of the spout to make a ¼" (6 mm) to 3/8" (9 mm) hole. Squeeze Concrete Crack Seal into the crack, over-filling slightly to allow for shrinkage. A second coat can be applied after 24 hours as needed to provide a uniform finished surface.

## PRECAUTIONS

• Do not apply in cracks wider than ½" (12 mm). Temperature should be between 45°F and 100°F (7°C and 38°C). Keep product from freezing. Do not apply if rain is expected within 24 hours. Do not apply to surfaces which will later be coated with anything other than acrylic water-based paint.

## WARRANTY

The QUIKRETE® Companies warrant this product to be of merchantable quality when used or applied in accordance with the instructions herein. The product is not warranted as suitable for any purpose or use other than the general purpose for which it is intended. Liability under this warranty is limited to the replacement of its product (as purchased) found to be defective, or at the shipping companies' option, to refund the purchase price. In the event of a claim under this warranty, notice must be given to The QUIKRETE® Companies in writing. This limited warranty is issued and accepted in lieu of all other express warranties and expressly excludes liability for consequential damages.

The QUIKRETE® Companies
One Securities Centre
3490 Piedmont Rd., NE, Suite 1300, Atlanta, GA 30305
(404) 634-9100 • Fax: (404) 842-1425

# FIELD CHANGE REQUEST FORM

| **Contract No.:** N62473-17-D-0006 | **CTO No.:** N6247317F4550 | **Field Change Request Form No.:** 001 |
|---|---|---|
| **Location:** Parcel D-1, Hunters Point Naval Shipyard | | **Date:** October 29, 2018 |
| **Document Title:** Final Revision 1, Final Remedial Action Work Plan Addendum, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California, May 2016, DCN: CBI-2005-0003-0006.R1/F | | **NIRIS Document #:** N/A |

**RE:** Drawing No.: Not Applicable Title _____

Specification Section 32 10 00, Part 3.3.2.2 Title Bituminous Concrete Pavement

Other _____

**Description** (items involved, submit sketch, if applicable)

Design Basis Report (DBR), Project Specification 32 10 00, "Bituminous Concrete Pavement," Part 3.3.2.2, "Testing of Wear Course for SD-06," states:

a. Density: Determine density of pavement by testing cores obtained from the binder and wearing course in accordance with AASHTO T 230.

   Take three cores at location designated by Contracting Officer for each 200 tons, or fraction thereof, of asphalt placed. Deliver cores undisturbed and undamaged to laboratory and provide test results within 48 hours of each day placement of paving materials.

b. Thickness: Determine thickness of the binder and wearing course from cores taken for density test.

This Field Change Request (FCR) revises the density and thickness testing requirements to include in-place testing by nuclear testing methods in addition to core sampling. Density will be tested using nuclear testing methods in accordance with ASTM D 2950, Standard Method for Density of Bituminous Concrete in Place by Nuclear Methods. This FCR proposes to collect a minimum of three (3) nuclear gauge tests for every 200 tons of asphalt delivered per ASTM D 2950. A minimum of four (4) core samples (AASHTO T230) will be collected to establish a baseline calibration of the nuclear gauge, after which the testing frequency for core sampling will be reduced to 1 test per every 10 nuclear gauge tests as a quality control/quality assurance check.

# FIELD CHANGE REQUEST FORM

| Contract No.: | CTO No.: | Field Change Request Form No.: |
|---|---|---|
| N62473-17-D-0006 | N6247317F4550 | 001 |

**Reason for Change**

Core testing is a destructive test, which means that cores are cut and removed from the finished product for testing; the nuclear gauge testing method is a non-intrusive test. During implementation of the remedial action at Parcel D-1, Phase 1, 276 4-inch core samples were cut through the newly installed AC surface and the cores were sent to the selected geotechnical laboratory for density testing. Each core location remained open on site until an acceptable density was confirmed at each location. Only after a passing test result had been confirmed were the cores filled with a concrete mix following the specifications in Section 03 30 00 of the DBR. Of the core samples collected during the Parcel D-1 Phase 1 RA, 100% met or exceeded the minimum requirements for density and thickness of the finished AC surface as reported in the *Final Remedial Action Completion Report, Remedial Action in Parcel D-1, Phase 1, Hunters Point Naval Shipyard, San Francisco, California* (APTIM, 2018; Appendix H).

Determining asphalt density exclusively through testing cores at the frequency described in the DBR would result in an estimated 120 additional cores cut through the finished wear course across Parcel D-1, Phase 2. Observations made during the Phase 1 O&M have indicated this process may help to create a preferential pathway for vegetation to penetrate the final durable cover, even with the use of tack coat to help with bonding of the two materials. Therefore, to ensure the long term integrity of the durable cover, minimize the amount of repair work required across the finished asphalt surface during and following the one-year operation and maintenance (O&M) period, as well as greatly expedite the turnaround time on testing results, density testing using nuclear methods in accordance with ASTM D 2950 is proposed as an engineer approved equivalent testing method.

**Technical Justification**

Determining the density of asphalt by in-place testing using nuclear methods in accordance with ASTM D 2950 is considered an engineered approved equivalent to core testing and is commonly used within the industry. This test is generally conducted by comparing nuclear gauge to core density values for four or more random locations to help ensure accuracy. The difference between the two average density values will be used to determine a correction factor, which in turn will be applied to each nuclear density reading on the project to obtain a corrected nuclear density. Core sampling will continue to be performed to validate the nuclear gauge results for quality assurance at a frequency of 1 test per every 10 nuclear gauge tests. The thickness of the finished pavement section may be determined using the following equation:

$t = W/0.75d$

Where t = pavement thickness, in inches

W = average weight per square yard of mixture actually used in work

d = compacted density as measured by nuclear density device

# FIELD CHANGE REQUEST FORM

| **Contract No.:** N62473-17-D-0006 | **CTO No.:** N6247317F4550 | **Field Change Request Form No.:** 001 |
|---|---|---|

**Recommended Disposition** (submit sketch, if applicable)

Collect a minimum of four (4) core samples (AASHTO T230) to establish a baseline calibration of the nuclear gauge. The difference between the average density established by core sampling and the nuclear gauge will be used to determine a correction factor, if necessary. Density of the finished asphalt cover will then be determined by nuclear methods (ASTM D 2950) at a frequency of three (3) nuclear gauge tests for every 200 tons of asphalt delivered. Core sampling for offsite testing will continue at a frequency of 1 test per every 10 nuclear gauge tests as a quality control/quality assurance check.

**Additional Details**

None

Will this change result in a contract cost or time change? ☐ Yes ☒ No

Estimate of contract cost or time charge (if any) _____

| Preparer (signature) | Date | Preparer's Title | Technical Lead (Signature) | Date |
|---|---|---|---|---|
| | 10/29/18 | Project Engineer | | 10/29/18 |

Disposition

☒ Approved

☐ Not approved (give reason): _____

| Engineer (signature) (if engineering related) | Date | Project Manager (signature) | Date |
|---|---|---|---|
| ☐ Comments (attached) ☒ No Comments | 10/29/18 | Lisa Bercik Digitally signed by Lisa Bercik DN: cn=Lisa Bercik, o, ou=APTIM, email=lisa.bercik@aptim.com, c=US Date: 2018.10.29 16:05:04 -07'00' ☐ Comments (attached) ☒ No Comments | 10/29/18 |
| Navy RASO (signature) N/A ☐ Comments (attached) ☐ No Comments | Date | QC Manager (signature) ☐ Comments (attached) ☒ No Comments | Date 10/29/18 |
| Navy RPM (signature) See Navy email for approach (attached to this FCR) ☐ Comments (attached) ☐ No Comments | Date | NAVFAC SW QAO (signature) N/A ☐ Comments (attached) ☐ No Comments | Date |

# FIELD CHANGE REQUEST FORM

Attachments:
N/A

Distribution:
Project File
Copy to Site File
Project Manager

**From:** Knolle, Samantha L CIV NAVFAC SW, EV31
**To:** Bercik, Lisa M.
**Cc:** Howard, Leslie A CIV NAVFAC SW; Ayala, Mike; Vennemeyer, Mark; Kalombo, Eddie; Janda, Danielle L CIV
**Subject:** RE: D0006 CTO 4550 - Field Change Request (FCR)-001 - Asphalt Density Testing
**Date:** Tuesday, October 30, 2018 10:23:18 AM

---

Hi Lisa,

After reviewing FCR 001 - Asphalt Density Testing, the Navy has determined that your approach is reasonable and consistent with industry practices. The Navy approves the Field Change Request.

Thank you.

Very Respectfully,

Samantha Knolle, EIT
Environmental Engineer Intern
Hunters Point
Navy BRAC PMO West
33000 Nixie Way Bldg 50
San Diego, CA 92147
Office - 619-524-5795
Cell - 530-923-1957

-----Original Message-----
From: Bercik, Lisa M. <https://urldefense.proofpoint.com/v2/url?u=http-3A__lisa.bercik-40aptim.com&d=DwIFAg&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=4fedbBYmIEEA5_eZyfra_h1MgdMcvJYDsv27x1F_Qnk&m=AZR2BoL2AsWtTB2SByQAx6jwiGrESuxrPnX-IG7uP1E&s=0wYPghIZLCo0a5oqz8uIp1eW2Hejekr6Iwj1KB59Zw0&e=>
Sent: Monday, October 29, 2018 4:11 PM
To: Knolle, Samantha L CIV NAVFAC SW, EV31 <https://urldefense.proofpoint.com/v2/url?u=http-3A__samantha.l.knolle-40navy.mil&d=DwIFAg&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=4fedbBYmIEEA5_eZyfra_h1MgdMcvJYDsv27x1F_Qnk&m=AZR2BoL2AsWtTB2SByQAx6jwiGrESuxrPnX-IG7uP1E&s=P1EhFqZbgwmFJ8TL2LM5HvWHuPUZdqAdpOmd4cMF8mw&e=>
Cc: Howard, Leslie A CIV NAVFAC SW <leslie.howard@navy.mil>; Ayala, Mike <Mike.Ayala@aptim.com>; Vennemeyer, Mark <https://urldefense.proofpoint.com/v2/url?u=http-3A__Mark.Vennemeyer-40aptim.com&d=DwIFAg&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=4fedbBYmIEEA5_eZyfra_h1MgdMcvJYDsv27x1F_Qnk&m=AZR2BoL2AsWtTB2SByQAx6jwiGrESuxrPnX-IG7uP1E&s=NwTyV9YvyOHT4Scb614CkrNgBVJqfeGGGoc7JjF1rzQ&e=>; Kalombo, Eddie <eddie.kalombo@aptim.com>
Subject: [Non-DoD Source] D0006 CTO 4550 - Field Change Request (FCR)-001 - Asphalt Density Testing

Hi Samantha,

FCR-001 is attached for your review. This FCR revises the asphalt density testing requirements by adding nuclear gauge testing and using asphalt cores as a QC/QA check.

Please let me know if you have questions.

Thanks,

Lisa

Lisa Bercik, PE, QSD, QSP

Project Manager

APTIM | Diversified Services

O  619 446 4508

M  619 213 3389

E  lisa.bercik@aptim.com

1230 Columbia Street, Suite 600

San Diego, CA 92101

APTIM.com

# SUBMITTAL TRANSMITTAL

| ACTIVITY ID | DATE |
|---|---|
| | 11/7/2018 |

| CONTRACT NO | CONTRACT TITLE | SUBMI NO |
|---|---|---|
| N62473-17-D-0006, CTO 4550 | Radiological Work Tasks | 003 |

SUBM ITEM DESCRIPTION: ~~Upland Slurry Wall Mix Design~~ BITUMINOUS MIX DESIGN 11/27/19

| | | |
|---|---|---|
| SUBMITTAL PRIORITY? | (•) HIGH | ( ) NORMAL |
| PREPARED BY CQC MGR? | ( ) YES | (•) NO |
| SCHEDULE REFERENCED? | ( ) YES | (•) NO |
| CRITICAL PATH? | (•) YES | ( ) NO |

| SPEC SECTION | SPEC PARAGRAPH | SPEC PAGE NO |
|---|---|---|
| 32 10 00 | 1.3.2 | |

APTIM is submitting the attached Alternative Mix design in accordance with the approval of RFI 001 (N62473-12-D-2005, CTO 003 Phase 1), which proposed the usage of the Caltrans mix design & the required test properties.

Lisa Bercik — Digitally signed by Lisa Bercik, DN: cn=Lisa Bercik, o, ou=APTIM, email=lisa.bercik@aptim.com, c=US, Date: 2018.11.07 15:53:43 -08'00' — Nov 7, 2018

CONTRACTOR/QUALITY CONTROL MANAGER — DATE

COMMENTS FOR DETAILED REVIEWER:

This Alternative Mix design will meet or exceed the applicable specifications listed in sections 39 and 92 of the Caltrans Standard Specifications as previously approved.

DETAILED REVIEWER 1 COMMENTS:

| DETAILED REVIEWER 1 NAME/SIGNATURE | TITLE | RESPONSE DATE |
|---|---|---|
| Mike Ayala | Project Engineer | Nov 7, 2018 |

DETAILED REVIEWER 2 COMMENTS:

| DETAILED REVIEWER 2 NAME/SIGNATURE | TITLE | RESPONSE DATE |
|---|---|---|
| | | |

APPROVER'S COMMENTS:

BROOKS.GEORGE.PATRICK.1255211966 — Digitally signed by BROOKS.GEORGE.PATRICK.1255211966, DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USN, cn=BROOKS.GEORGE.PATRICK.1255211966, Date: 2018.11.08 14:02:12 -08'00'

SUBM STATUS

GOVERNMENT CONSTRUCTION MANAGER — DATE

**PLEASANTON-HOT PLANT**
1544 STANLEY BLVD.
PLEASANTON, CA 94566
Ph: (408) 327-7042,
Fax: (925) 462-1005

GARCO TESTING LABORATORIES

October 30, 2018

Patrick Amaris
**Granite Construction Company**
715 Comstock Street
Santa Clara, CA 95054
PH: (408) 327-7000

Mix ID: 1056 - ½" HMA-A R-15 PG64-10
Project: **Hunters Point Parcel D, SF**
Subject: Submittal for ½" HMA, Type "A" meets and exceeds Type "B" aggregate quality requirements Per Section 39, Cal Trans (2010) Specifications.

| **HOT BIN PROPORTIONS** | | |
|---|---|---|
| ***Item #*** | ***Material*** | ***Percent of Blend*** |
| 1 | Eliot Dust | 8% |
| 2 | Eliot WS | 44% |
| 3 | Eliot 3/8" | 37% |
| 4 | Eliot ½" | 11% |
| RAP | (-) 3/8" | |
| Total Binder | PG64-10 | 5.70% TMA |

| **AGGREGATE GRADATION (CT202) (2010 Specifications)** | | | | | |
|---|---|---|---|---|---|
| ***Sieve Size*** | ***Gradation*** | ***Target Value Limit*** | ***Target*** | ***Allowable Tolerance*** | ***Specification*** |
| ¾" | 100 | 100 | 100 | ---- | 100 |
| ½" | 97 | 95 – 99 | 97 | TV ±6 | 91 – 100 |
| ⅜" | 89 | 75 – 95 | 88 | TV ±6 | 82 – 94 |
| #4 | 60 | 55 – 66 | 60 | TV ±7 | 53 – 67 |
| #8 | 38 | 38 – 49 | 39 | TV ±5 | 34 – 44 |
| #30 | 18 | 15 – 27 | 18 | TV ±4 | 14 – 22 |
| #200 | 4.8 | 2.0 – 8.0 | 4.9 | TV ±2 | 2.9 – 6.9 |
| AC Content | | | 5.7 | | 5.25% - 6.15% |

| **HMA Mix Design Data** | | | |
|---|---|---|---|
| Quality Characteristics | Test Method | **Value** | **Sec. 39 Specifications (2010)** |
| Voids in Mineral Agg (VMA) | CTM 367 | 14.2 | 13 % (min) |
| Voids Filled with Asphalt (VFA) | | 70.5 | 65.0% – 75.0% |
| Dust Proportion | | 1.1 | 0.6 – 1.3 |
| Stability | CTM 366 | 40 | 35 min. |
| Aggregate Properties | | | |
| Sand Equivalent, SE (%) | CTM 217 | 70 | 47 min |
| LAR (% max) 100 rev. | CTM 211 | 6 | 12 |
| 500 rev. | | 27 | 45 |
| Crushed Particles (%) | CTM 205 | 97 | 90/70 min. |

If we can be of further assistance, please do not hesitate to call.
Sincerely,
**GRANITE CONSTRUCTION COMPANY**

Hongbin Xie
Regional QC Manager

# FIELD CHANGE REQUEST FORM

| **Contract No.:** N62473-17-D-0006 | **CTO No.:** N6247317F4550 | **Field Change Request Form No.:** 002 |
|---|---|---|
| **Location:** Parcel D-1, Hunters Point Naval Shipyard | | **Date:** November 28, 2018 |
| **Document Title:** Final Revision 1, Final Remedial Action Work Plan Addendum, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California, May 2016, DCN: CBI-2005-0003-0006.R1/F | | **NIRIS Document #:** N/A |

**RE:** Drawing No.: Design Drawing C-10 Title Parcel D-1 Durable Cover Detail II

Specification Section _____ Title _____

Other _____

**Description** (items involved, submit sketch, if applicable)

Design Basis Report (DBR), Design Drawing C-10, "Parcel D-1 Durable Cover Detail II," Details 1, 2, and 3 specify the minimum depth for the fence post and gate post concrete encasements is 3 feet below ground surface (bgs).

This Field Change Request (FCR) revises the depth of the fence and gate posts within the Parcel D-1 Area Requiring Institutional Controls (ARIC). Excavation deeper than 2 feet bgs is prohibited in this radiologically restricted area. Therefore, the project drawings require a change to the minimum depth of posts in this area.

**Reason for Change**

The DBR was prepared in 2011 prior to the establishment of the ARIC in Parcel D-1 Phase 2. This FCR revises the depth of excavation to be consistent with current restrictions. The strength and durability of the fence are not expected to be affected by this change in depth. Further, the fence is not required as part of the final remedy described in the *Final Record of Decision for Parcels D-1 and UC-1, Hunters Point Shipyard, San Francisco, California* (Navy, 2009) and is being installed for security purposes only.

# FIELD CHANGE REQUEST FORM

| **Contract No.:** N62473-17-D-0006 | **CTO No.:** N6247317F4550 | **Field Change Request Form No.:** 001 |
|---|---|---|

**Recommended Disposition** (submit sketch, if applicable)

Fence posts within the ARIC will be driven to a maximum depth of 2 feet bgs (see attached figure).

**Additional Details**

None

Will this change result in a contract cost or time change? ☐ Yes ☒ No

Estimate of contract cost or time charge (if any) _____

| Preparer (signature) | Date | Preparer's Title | Technical Lead (Signature) | Date |
|---|---|---|---|---|
| Rosa Bernik | 11/28/18 | Project Manager | | 11/28/18 |

Disposition

☒ Approved

☐ Not approved (give reason): _____

| Engineer (signature) (if engineering related) | Date | Project Manager (signature) | Date |
|---|---|---|---|
| ☐ Comments (attached) ☒ No Comments | 11/28/18 | Rosa Bernik<br>☒ Comments (attached) ☒ No Comments | 11/28/18 |
| Navy RASO (signature)<br>N/A<br>☐ Comments (attached) ☐ No Comments | Date | QC Manager (signature)<br>☐ Comments (attached) ☒ No Comments | Date<br>11/28/18 |
| Navy RPM (signature)<br>See Navy email for approval (attached to this FCR)<br>☐ Comments (attached) ☐ No Comments | Date | NAVFAC SW QAO (signature)<br>N/A<br>☐ Comments (attached) ☐ No Comments | Date |

Attachments:

N/A

Distribution:

Project File
Copy to Site File
Project Manager

PARCEL C

PARCEL G

PARCEL D-1

PARCEL E

"E" ST.

"H" ST.

MORRELL ST.

COCHRANE ST.

MANSEAU ST.

HUSSEY ST.

MAHAN ST.

BERTH 10

BERTH 11

South Pier

BERTH 12

BERTH 13

BERTH 14

SOUTH SLIP

BERTH 15

BERTH 16

BERTH 17

BERTH 18

BERTH 19

BERTH 20

BERTH 21

BERTH 22

BERTH 23

BERTH 24

BERTH 27

BERTH 28

BERTH 29

Gun Mole Pier

San Francisco Bay

Phase II

IR22MW07A

IR22MW08A

IR22MW20A

IR35MW01A

IR22MW16A

IR22MW15A

IR71MW20A

IR55MW02A

IR70MW04A

IR50MW15A

IR17MW11A

IR17MW13A

AREA FOR RIPRAP STABILIZATION

AREA FOR RIPRAP STABILIZATION

PRIMARY SITE ACCESS POINT

TRACK OUT PREVENTION CONTROL POINT

301 300 367 308 369 368 274 306 302 304 363 366 415 323 324 351 351A 364 365 420 419 424 418 417 411 409 407 408 438 439 406 413 414 606 500 307 381 523 530 525 526 527

0 250 500 Feet

**Legend**

- Existing Monitoring Well
- Approximate Location of Turbidity Curtain
- Install Survey Monument
- Windsock
- Approximate Location of 1946 Shoreline
- 6-ft. High Fence
- Stabilized Construction Entrance/Exit
- Existing Surface with No Asphalt (Durable Cover to be Constructed)
- Existing Asphalt Pavement Requiring New Asphalt or Asphalt Repair
- Gamma Walkover Survey Area/ Area Requiring Institutional Controls
- Phase II
- Building (Existing)
- Parcel Boundary

NOTES:

1. See text for information about Best Management Practices (BMPs).
2. Actual locations, durations, and quantities of BMP implementation will be determined in accordance with the text and actual field conditions and schedule.
3. 1946 Shoreline Reference: Gilbane, 2018, Draft Final Remedial Action Completion Report, Radiological Remediation and Support, Parcel D-1 Phase II, Hunters Point Naval Shipyard, San Francisco, California.

Fence posts will be placed to a maximum depth of 2 feet below ground surface in the ARIC.

U.S. Department of the Navy
BRAC PMO West
San Diego, California

FIGURE 2

CONSTRUCTION SITE LAYOUT

REMEDIAL ACTION AT PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

G:\HUNTERS_PT\GIS_Documents\Project_Maps\D1_CTO31\HP_D1_027_Phase2_WP.mxd 5/21/2018

| | |
|---|---|
| **From:** | Knolle, Samantha L CIV NAVFAC SW, EV31 |
| **To:** | Bercik, Lisa M.; Howard, Leslie A CIV NAVFAC SW |
| **Cc:** | Vennemeyer, Mark; Egan, Mark; Ayala, Mike; Janda, Danielle L CIV |
| **Subject:** | RE: Parcel D-1 - Field Change Request (FCR) 002 - Fence Post Depth |
| **Date:** | Thursday, November 29, 2018 8:17:43 AM |

---

Lisa,

Thank you for pointing me to the document you were referencing. After reviewing the Parcel D-1 Phase 2 RACR prepared by Gilbane, I was able to verify the information in FCR 002 - Fence Post Depth.

The Navy agrees with your recommendation to install the fence posts to a maximum depth of 2 feet bgs and approves your FCR 002 - Fence Post Depth.

Very Respectfully,

Samantha Knolle, EIT
Environmental Engineer Intern
Hunters Point
Navy BRAC PMO West
33000 Nixie Way Bldg 50
San Diego, CA 92147
Office - 619-524-5795
Cell - 530-923-1957

-----Original Message-----
From: Bercik, Lisa M. <lisa.bercik@aptim.com>
Sent: Thursday, November 29, 2018 7:38 AM
To: Knolle, Samantha L CIV NAVFAC SW, EV31 <samantha.l.knolle@navy.mil>; Howard, Leslie A CIV NAVFAC SW <leslie.howard@navy.mil>
Cc: Vennemeyer, Mark <Mark.Vennemeyer@aptim.com>; Egan, Mark <mark.egan@aptim.com>; Ayala, Mike <Mike.Ayala@aptim.com>
Subject: [Non-DoD Source] RE: Parcel D-1 - Field Change Request (FCR) 002 - Fence Post Depth

The ARIC I'm referring to is the hashed area on this figure. I believe the area was determined in the Gilbane Phase 2 RACR.

Lisa Bercik, PE, QSD, QSP
Project Manager

APTIM | Diversified Services

O 619 446 4508
M 619 213 3389
E lisa.bercik@aptim.com

1230 Columbia Street, Suite 600
San Diego, CA 92101

APTIM.com

-----Original Message-----
From: Knolle, Samantha L CIV NAVFAC SW, EV31 <samantha.l.knolle@navy.mil>
Sent: Thursday, November 29, 2018 7:34 AM
To: Bercik, Lisa M. <lisa.bercik@aptim.com>; Howard, Leslie A CIV NAVFAC SW <leslie.howard@navy.mil>

Cc: Vennemeyer, Mark <Mark.Vennemeyer@aptim.com>; Egan, Mark <mark.egan@aptim.com>; Ayala, Mike <Mike.Ayala@aptim.com>
Subject: RE: Parcel D-1 - Field Change Request (FCR) 002 - Fence Post Depth

Hi Lisa,

Which document are you referencing for the ARIC in Parcel D-1 Phase 2? You mentioned in the FCR that it was written after the DBR that was prepared in 2011. I just want to verify the information before I give you guys the green light.

Thanks.

Very Respectfully,

Samantha Knolle, EIT
Environmental Engineer Intern
Hunters Point
Navy BRAC PMO West
33000 Nixie Way Bldg 50
San Diego, CA 92147
Office - 619-524-5795
Cell - 530-923-1957

-----Original Message-----
From: Bercik, Lisa M. <lisa.bercik@aptim.com>
Sent: Wednesday, November 28, 2018 6:03 PM
To: Knolle, Samantha L CIV NAVFAC SW, EV31 <samantha.l.knolle@navy.mil>; Howard, Leslie A CIV NAVFAC SW <leslie.howard@navy.mil>
Cc: Vennemeyer, Mark <Mark.Vennemeyer@aptim.com>; Egan, Mark <mark.egan@aptim.com>; Ayala, Mike <Mike.Ayala@aptim.com>
Subject: [Non-DoD Source] Parcel D-1 - Field Change Request (FCR) 002 - Fence Post Depth

Hi Samantha and Leslie,

The subject FCR is attached for your review/approval. The DBR design drawings for the fence posts specify a depth of 3 feet bgs for the concrete encasements. In the Area Requiring Institutional Controls (ARIC), excavation is restricted to 2 feet bgs. Therefore, we recommend installing the fence posts to a maximum depth of 2 feet bgs.

Please let me if you'd like to discuss or have questions.

Thanks,

Lisa

Lisa Bercik, PE, QSD, QSP

Project Manager

APTIM | Diversified Services

O  619 446 4508

M  619 213 3389

E  lisa.bercik@aptim.com

1230 Columbia Street, Suite 600

San Diego, CA 92101

APTIM.com